

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.12 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1. Facility Name and Mailing Address: Purkins Corner Wastewater Treatment Plant
9207 Kings Highway
King George, VA 22485

Facility Location: 11224 Henry Griffin Road
King George, VA 22485

Facility Contact Name: Jeffrey Hockaday
Telephone Number: 540-775-2746
Email Address: jhockaday@co.kinggeorge.state.va.us
2. Permit No.: VA0070106
Expiration Date of previous permit: 6/14/11
Other VPDES Permits associated with this facility: VAN010060
Other Permits associated with this facility: NA
E2/E3/E4 Status: NA
3. Owner Name: King George County Service Authority
Owner Contact/Title: Christopher F. Thomas, P.E.
General Manager
Telephone Number: (540) 775-8563
Email Address: cthomas@co.kinggeorge.state.va.us
4. Application Complete Date: April 25, 2011
Permit Drafted By: Joan C. Crowther
Date Drafted: 12/2/2011
Revised Date: 5/29/12
Draft Permit Reviewed By: Alison Thompson
Date Reviewed: 12/8/2011
WPM Review By: Bryant Thomas
Date Reviewed: 12/20/11
Public Comment Period : Start Date: June 9, 2012
End Date: July 9, 2012
5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination
Receiving Stream Name : Pine Hill Creek, UT (During this permit reissuance, the receiving stream's name was revisited, and determined to be an unnamed tributary to Pine Hill Creek, not part of the Pine Hill Creek mainstream.)
Drainage Area at Outfall: 0.36 sq.mi.
Stream Code: 1aXHK
Stream Basin: Potomac River
River Mile: 0.38
Section: 1a
Subbasin: Potomac River
Special Standards: None
Stream Class: VII
7Q10 Low Flow: 0.0 MGD
Waterbody ID: VAP-A31R
1Q10 Low Flow: 0.0 MGD
7Q10 High Flow: 0.0 MGD
30Q10 Low Flow: 0.0 MGD
1Q10 High Flow: 0.0 MGD
Harmonic Mean Flow: 0.0 MGD
30Q10 High Flow: 0.0 MGD
30Q5 Flow: 0.0 MGD
303(d) Listed (Receiving Stream): No
303(d) Listed (Downstream): Yes (DO listed as 4C)
TMDL (Receiving Stream): No
TMDL (Downstream): No (4C –impaired but no TMDL necessary)
Date TMDL Approved (Receiving Stream): Not Applicable
Date TMDL Approved (Downstream): Not Applicable

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

<input checked="" type="checkbox"/> State Water Control Law	<input checked="" type="checkbox"/> EPA Guidelines
<input checked="" type="checkbox"/> Clean Water Act	<input checked="" type="checkbox"/> Water Quality Standards
<input checked="" type="checkbox"/> VPDES Permit Regulation	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> EPA NPDES Regulation	

7. Licensed Operator Requirements: Class II

8. Reliability Class: Class I

9. Permit Characterization:

<input type="checkbox"/> Private	<input type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Toxics Monitoring Program Required	<input type="checkbox"/> Interim Limits in Permit
<input checked="" type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input checked="" type="checkbox"/> Interim Limits in Other Document (Consent Special Order dated August 4, 2011)
<input type="checkbox"/> TMDL		

10. Wastewater Sources, Treatment Description, and Compliance History:

In January 2012, the Purkins Corner Wastewater Treatment's upgrade was completed. This upgrade was to address and enhance the treatment efficiency for conventional parameters. The upgrade also increased process performance/efficiency, compliance with the existing VPDES Permit, reliability, and automation and flexibility. A secondary benefit of the upgrade was to incorporate biological nutrient removal. The upgraded facility consists of grinder and auger to remove the large objects; surge and flow equalization tanks; anoxic tanks for biological nitrogen removal via denitrification; aeration tanks; clarifiers with polymer addition prior to the clarifier; sand filtration; disk cloth filter; and ultraviolet disinfection. One sludge holding tank exists to hold 30,000 gallons of waste sludge prior to hauling it to the County owned Dahlgren Wastewater Treatment Plant for final disposal.

On May 6, 2010, the facility received a Certificate to Construct (CTC). The May 6, 2010 CTC documentation stated that the TN and TP design annual concentration performance levels were 3.0 mg/L and 0.30 mg/L, respectively. During the permittee's first review of this draft permit (January 2012), staff was notified that the TN and TP annual concentrations were not designed for these state of the art annual concentrations and that BNR annual concentrations were more realistic. On March 8, 2012, a meeting between KGCSA and DEQ was held to discuss the permittee's comments and questions regarding the proposed draft permit and fact sheet. It was at this meeting that staff requested that KGCSA provide TN and TP design calculations and specify what would be appropriate TN and TP annual concentrations for the installed upgrade. KGCSA has documented by emails dated April 12 and 13, 2012, that the installed upgrade is capable of meeting a TN of 10 mg/L and a TP of 1.0 mg/L annual concentrations. The CTC (See Attachment 2) was modified on May 1, 2012, to address the Total Nitrogen (TN) and Total Phosphorus (TP) annual concentrations design specifications.

King George County Service Authority entered into a Consent Special Order dated August 4, 2011. The Order requires that the facility achieve compliance with the permit effluent limitations within 60 days of DEQ issuance of a CTO for any modification or upgrade to the treatment works or no later than January 15, 2012 whichever occurs first. (See Attachment 3). Due to issues dealing with the TN and TP actual treatment efficiency of the upgraded facility, the issuance of the CTO was delayed until May 1, 2012.

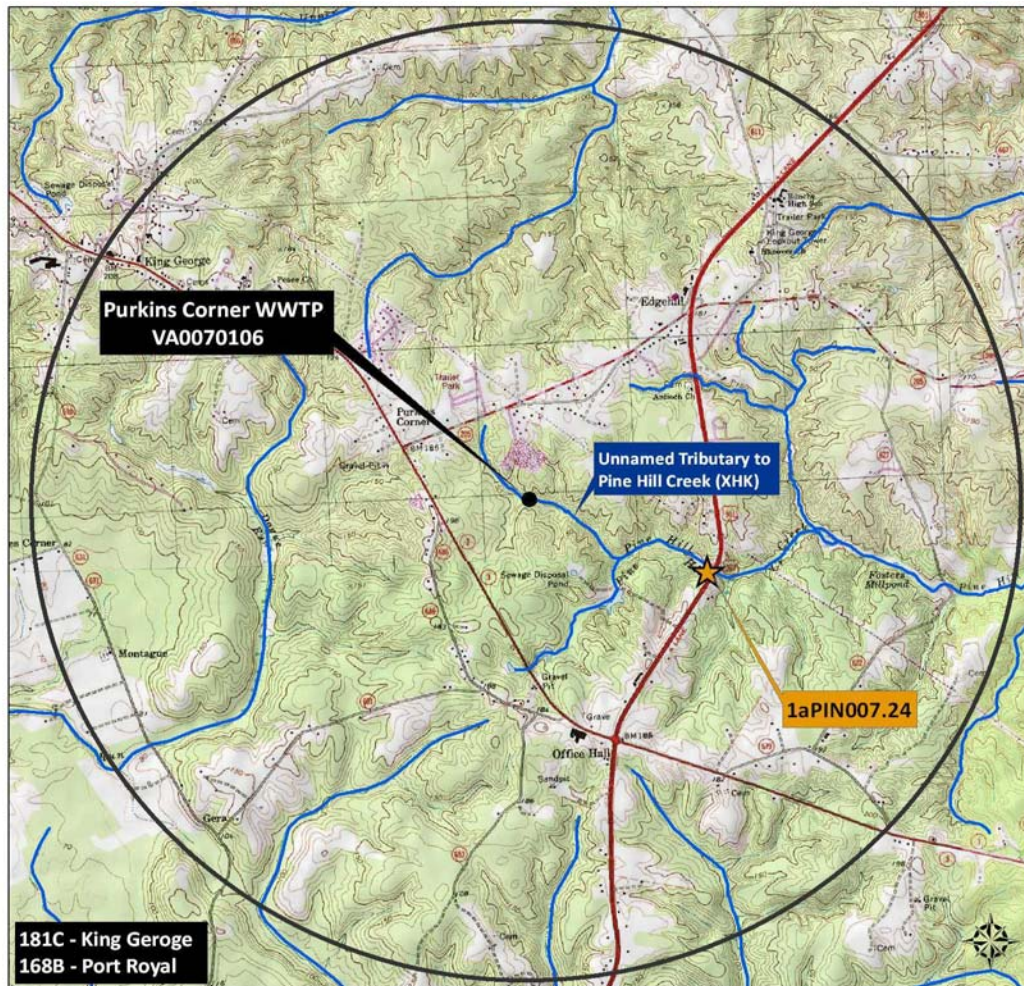
Chemical addition for the upgraded plant is as follows:

- 1) Alum – added to the mixed liquor prior to entering the clarifiers to precipitate, settle, and remove phosphorus.
- 2) Calcium Chloride – added to enhance the precipitation of phosphorus and to raise or adjust the hardness levels to reduce or eliminate any toxic effects of the metals.
- 3) Polymer – enhances the performance of both the clarifiers and filters for reducing the total suspended solids concentrations in the effluent.

See Attachment 4 for a facility schematic/diagram.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flows	Outfall Latitude and Longitude
001	Domestic and Commercial Wastewater	See Item 10 above.	0.12 MGD	38° 15' 13" N 77° 09' 23" W

Topographical Maps: King George (181C) and Port Royal (168B)**11. Sludge Treatment and Disposal Methods:**

The waste sludge is taken to the King George County's Dahlgren Wastewater Treatment Plant (VA0026514) for further digestion and dewatering prior to disposal at the King George County Landfill. Transportation of the dewatered sludge is done by Waste Management located at 45 Utah Place, Falmouth, Virginia, 22485 (800-969-2069).

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge:

There are no VPDES permitted facilities within a 2 mile radius of this facility. The only DEQ monitoring station within a 2 mile radius of this facility is Station 1aPIN007.24, located on Pine Hill Creek at the Route 301 Bridge crossing. There are no drinking water intakes within a 5 mile radius of this facility.

13. Material Storage:

TABLE 2 - Material Storage		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Calcium chloride (Dry)	60- 50 lb bags	A berm around the chemical feed tanks serves as spill containment for the 200 gallon day tanks. Any chemicals spills drain via the flow drain to the wastewater treatment basins.
Alum (Dry)	60-50 lb bags	
Liquid cationic polymer	1-2 barrels	

14. Site Inspection:

Performed by Sharon Allen on March 8, 2012 (see Attachment 5).

15. Receiving Stream Water Quality and Water Quality Standards:a) Ambient Water Quality Data

There is no monitoring data for the receiving stream, an unnamed tributary to Pine Hill Creek (XHK).

The nearest downstream DEQ monitoring station with ambient data is Station 1aPIN007.24, located on Pine Hill Creek at the Route 301 Bridge crossing. This station is located approximately 0.91 rivermile downstream from the Purkins Corner Wastewater Treatment Plant's outfall. The following is a monitoring summary for this station, as taken from the 2010 Integrated Assessment:

Pine Hill Creek Watershed: Class VII, Section 1a, Special Standards: none

Water Quality Monitoring Stations:

1aPIN000.57 (Ambient) – located at Route 205 Bridge

1aPIN003.08 (TMDL) – located at Route 620 Bridge

1aPIN004.94 (TMDL) – located at Route 621 Bridge

1aPIN007.24 (TMDL) – located at Route 301 Bridge

1aXJU000.19 (TMDL) – located at Route 205 Bridge (Unnamed tributary to Pine Hill Creek)

1aPIN006.17 (Special Study) – located at Route 622 Bridge

Pine Hill Creek was identified in Appendix B of the June 1999 Consent Decree as a water for listing consideration; pH was listed as the parameter of concern. During the 2002 cycle, the segment was assessed as impaired of the Aquatic Life Use support goals based on DO exceedances and pH exceedances at the Route 205 Bridge (1aPIN000.57) and widespread pH exceedances upstream. The pH TMDL was due in 2010; the DO TMDL was due in 2014.

During the 2006 cycle, two Natural Condition studies were performed on Pine Hill Creek for DO and pH. The reports recommended that Pine Hill Creek be reclassified as a swamp – each impairment being listed as 4C. Category 4C states that a water is impaired or threatened but does not require a TMDL because the impairment is not caused by a pollutant and/or is determined to be caused by natural conditions.

The Water Quality Standards were revised during the 2010 cycle and Pine Hill Creek was reclassified as a Class VII swamp water. At this time, the pH data were evaluated against the Class VII pH criteria (3.7 – 8.0 S.U.) and was delisted. However, there is no established criterion for dissolved oxygen for Class VII waters. Since there is no criterion to assess against and delist, the dissolved oxygen remains listed as 4C (meaning impaired but not needing a TMDL).

In addition, in 2004 the segment was listed as having an "observed effect" due to an exceedance of the cadmium sediment screening value in a sample taken in 1999. Further monitoring is recommended because the result (5.00 ppm) was just above the probably effect concentration (PEC) (4.98 ppm).

The DEQ NRO's planning statement dated December 22, 2011, is Attachment 6.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2010 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban storm water, onsite/septic agriculture, air deposition]. Fact Sheet Section 17.e provides additional information on specific nutrient limitations for this facility to implement the provisions of the Chesapeake Bay TMDL.

b) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Pine Hill Creek, UT is located within Section 1a of the Potomac River Basin, and classified as a Class VII water.

Class VII classification recognizes that the natural quality of these waters may fluctuate outside the values for D.O. and pH set as water quality criteria in Class I – VI waters. The natural quality of these waters is the water quality found or expected in the absence of human-induced pollution. Water quality standards will not be considered violated when conditions are determined by the board to be natural and not due to human-induced sources. Virginia Pollutant Discharge Elimination System limitations in Class VII waters shall not cause significant changes to the naturally occurring dissolved oxygen and pH fluctuations in these waters.

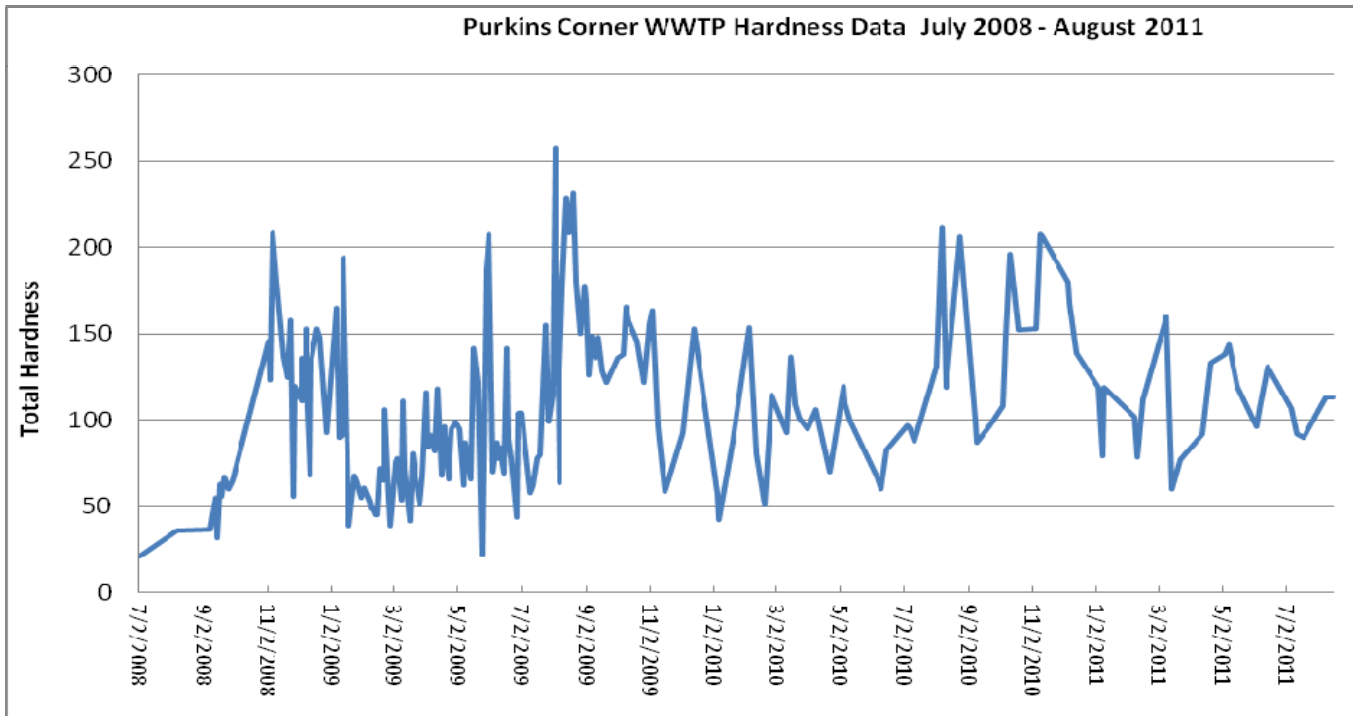
The Freshwater Water Quality Criteria/Wasteload Allocation Analysis dated December 8, 2011 (Attachment 7) details other water quality criteria applicable to the receiving stream.

Ammonia:

The 7Q10 and 1Q10 of the receiving stream are 0.0 MGD. In cases such as this, effluent pH and temperature data may be used to establish the ammonia water quality standard. Staff has evaluated the effluent data (January 2010 through August 2011) for pH (90th percentile = 7.2 S.U.; 10th percentile = 6.5 S. U.) and temperature (90th percentile = 26°C). These pH and temperature values will be used to derive the ammonia criteria. See Attachment 8 for the pH and temperature data.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/L calcium carbonate). When the 7Q10 of the receiving stream is zero and no ambient data is available, the effluent data for hardness can be used to determine the metals criteria. The permittee started to analyze the effluent for Total Hardness in July 2008 and continues to do so. The chart below shows that effluent's total hardness values have fluctuated greatly during this period.



Because of the hardness value variability, determining an appropriate total hardness value to use in permit limit derivation is difficult. In an email dated October 7, 2011 from Retaw Engineering (consulting engineering firm for KGCSA), it was stated that for the existing and for the upgraded plant, calcium chloride is being and will continue to be added to enhance the phosphorus precipitation and to “raise and/or adjust the hardness levels to reduce or eliminate any toxic effects of metals, such as copper and zinc, on the receiving stream. In fact, any permitted metals limit is proportional to the effluent hardness. Calcium chloride solution is added continuously to the Surge tank to maintain a target level of effluent hardness.” Using the hardness values from July 2008 until August 2011, the average total hardness is 106 mg/L with the minimum being 21.2 mg/L and the maximum being 258 mg/L. In the documentation received, the consulting engineer further states, “Upon completion of the plant upgrade, an average effluent total hardness of 150 to 200 mg/L will be maintained.”

The average Total Hardness value of 106 mg/L will be used to determine the hardness-dependent metals criteria in Attachment 9.

Bacteria Criteria: The Virginia Water Quality Standards (9VAC25-260-170 B.) states sewage discharges shall be disinfected to achieve the following criteria:

E. coli bacteria per 100 ml of water shall not exceed a monthly geometric mean of 126 n/100 mls for a minimum of four weekly samples taken during any calendar month.

c) **Receiving Stream Special Standards**

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Pine Hill Creek, UT is located within Section 1a of the Potomac River Basin. There are no special standards designated to this Water Quality Section.

d) **Threatened or Endangered Species**

The Virginia DGIF Fish and Wildlife Information System Database was searched on October 7, 2011, for records to determine if there are threatened or endangered species in the vicinity of the discharge. No threatened or endangered species were identified. See Attachment 10.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been designated a Tier 1 waterbody in the previous reissuance. This was based on the fact that the receiving stream is a dry (7Q10 equals 0.00 MGD) under critical flow conditions. Also, segments of the receiving stream have been identified as swamp/marsh waters, which result in the naturally occurring dissolved oxygen and pH levels being below the established. The receiving stream has been reclassified as Class VII Swamp water in the Virginia Water Quality Standards. It is staff's Best Professional Opinion that streams such as these are Tier 1. Therefore, the permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:

Effluent data obtained from the DMRs have been reviewed and determined to be suitable for evaluation. Effluent data June 2006 through October 2011 were reviewed, and the following exceedances of the established limitations were noted:

cBOD₅ – February 2007; February 2008; and December 2008-April 2009.

TSS – December 2006; January 2007 - May 2007; January 2008 – April 2008; November 2008 – December 2008; January 2009 – April 2009; January 2010 – February 2010; May 2010 – June 2010; and January 2011- February 2010,

TKN – December 2006; February 2007-March 2007; February 2008 – April 2008; June 2008; October 2008 – April 2010; and January 2011- February 2011.

Total Phosphorus – September 2008 – October 2008; December 2008; February 2009 – April 2009; July 2009; January 2010; and March 2011.

Dissolved Oxygen – July 2006.

pH – January 2008; November 2008; and August 2010.

E. coli – February 2008-April 2008; and March 2009.

Total Recoverable Copper – November 2006; March 2007- July 2007; October 2007; December 2007 – February 2008; November 2008 – December 2008; July 2009; January 2010; August 2010; February 2011 and April 2011.

Total Recoverable Selenium – July 2007.

Total Recoverable Silver – October 2007; and January 2008.

Total Recoverable Lead – September 2007- October 2007.

Total Recoverable Zinc - July 2006; September 2006 – December 2006; January 2007 – January 2008; November 2008; and April 2011.

During the 2008 permit modification process, Total Recoverable Silver and Total Recoverable Lead effluent limitations were removed from the permit.

The following pollutants require a wasteload allocation analysis: Ammonia as N, Total Recoverable Copper, Total Recoverable Zinc, and Total Recoverable Selenium.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:

WLA	=	Wasteload allocation
C _o	=	In-stream water quality criteria
Q _e	=	Design flow
Q _s	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
f	=	Decimal fraction of critical flow
C _s	=	Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C_o.

c) Effluent Limitations Toxic Pollutants, Outfall 001 –

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N/TKN:

Staff evaluated new pH and temperature effluent data (January 2010 through August 2011). Based on the analysis, the ammonia monthly average effluent limitation would be 2.9 mg/L and the weekly maximum effluent limitation would be 3.8 mg/L to protect the water quality of the receiving stream. (See Attachment 11) However, since the permit contains a TKN monthly average effluent limitation of 3.0 mg/L, these ammonia effluent limitations are not necessary. The TKN effluent limitation is based on the receiving stream being classified as a swamp environment. DEQ Guidance Memorandum 00-2011 (VPDES Permit Manual; Section MN-2, Page 17) has established limits for TKN for swamp/marsh waters which have shallow water and intermittent flows.

The facility will be given a year around TKN effluent limitation of 3.0 mg/L. A TKN limit of 3.0 mg/L assumes that the remaining nitrogen is in the form of refractory organic compounds that will not be easily oxidized and that ammonia is removed when this TKN limit is met. The weekly average concentration will be 4.5 mg/L based on a multiplier of 1.5 times the monthly average concentration. These limits were applied to the Purkins Corner WWTP in the previous permits and it is staff's best professional judgment that these limits are still appropriate and shall be carried forward with this permit reissuance.

2) Metals:

Total Recoverable Copper (8.0 µg/L monthly average and weekly maximum), Total Recoverable Selenium (5.0 µg/L monthly average and weekly maximum) and Total Recoverable Zinc (160 µg/L monthly average and weekly maximum) effluent limitations were established during the 2008 Permit Modification. Using the new Total Hardness data dated July 2008 through August 2011, new WLAs were established for Total Recoverable Zinc and Total Recoverable Copper. No effluent limitations were determined necessary for Total Recoverable Copper, Total Recoverable Zinc, and Total Recoverable Selenium.

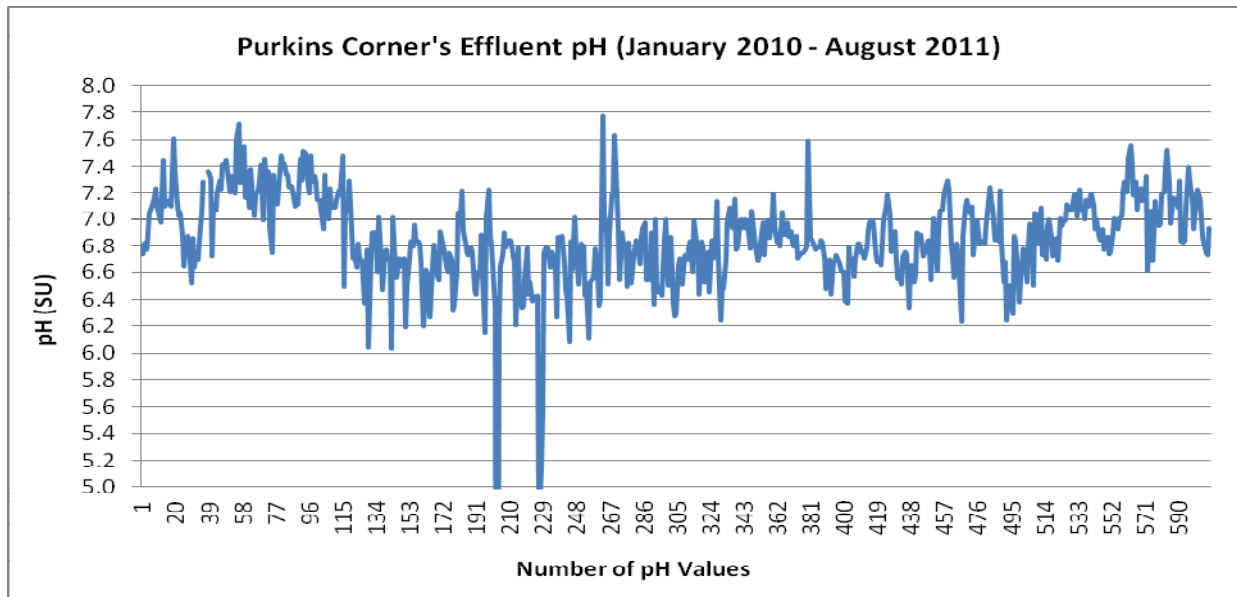
However because Total Recoverable Copper and Total Recoverable Zinc are dependent on the Total Hardness, effluent monitoring of Total Recoverable Copper and Total Recoverable Zinc will be incorporated into the permit reissuance. This monitoring requirement is due to the fact that the facility is adding Calcium Chloride which raises the Total Hardness of the effluent. Staff wants to ensure that through this monitoring Total Recoverable Copper and Total Recoverable Zinc are not causing a toxic effect to the receiving stream. See Attachment 12 for derivation of the limits.

Total Recoverable Selenium is not dependent on Total Hardness; therefore, no effluent limitations or monitoring will be required.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand 5- day (cBOD₅), total suspended solids (TSS), and total kjeldahl nitrogen (TKN) limitations are proposed. cBOD₅, TSS, Dissolved Oxygen, and TKN limitations are based on best professional judgment and Guidance Memo 00-2011 (VPDES Permit Manual; Section MN-2, Page 17). This guidance is applicable to this portion of the unnamed tributary to Pine Hill Creek because the receiving stream is swampy, shallow, flow is intermittent, and the waters cannot be modeled. As stated in this guidance, the cBOD₅ and TSS monthly average effluent limitation will be 10 mg/L with a weekly maximum of 15 mg/L. The Dissolved Oxygen minimum concentration will be 5.0 mg/L. These effluent limitations were applied to the Purkin Corners Wastewater Treatment Plant in the previous VPDES Permit and it is staff's best professional judgment that these limits are still appropriate and will be carried forward with this permit reissuance.

A change in the pH maximum effluent limitation is proposed due to the change in the Water Quality Standards' Class designation of the receiving stream from Class III (Free flowing) to Class VII (Swamp waters). In accordance with the Class VII Water Quality Standards, the maximum pH standard is 8.0 S.U. Also stated in the 9 VAC 25-260-50 as a footnote to Class VII waters, "Virginia Pollutant Discharge Elimination System limitations in Class VII waters shall not cause significant changes to the naturally occurring dissolved oxygen and pH fluctuations in these waters." The KGCSA has requested that the pH effluent limitations remain 6.0 to 9.0 S.U. primarily due to the recent installation of nutrient removal technology. However, staff has determined that due to the receiving stream reclassification, the pH maximum effluent limitation must be adjusted. A review of pH data (January 2010 through August 2011) indicates that the effluent pH value rarely exceeds 7.8 S.U. (see pH chart below) and the in-stream data as measured at downstream DEQ ambient water quality monitoring station (1aPIN007.24) did not appear impacted from the plant operation. The staff proposes to change the maximum pH effluent from 9.0 S.U. to 8.5 S.U. The minimum pH effluent limit will remain the same (6.0 S. U.) in accordance with the Water Quality Standards 9VAC25-260-170.



E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

e) Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 - *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new or expanding discharges with design flows of ≥ 0.04 MGD to treat for TN and TP to either BNR levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN010060. Total Nitrogen Annual Loads and Total Phosphorus Annual Loads from this facility are found in 9VAC25-720 – *Water Quality Management Plan Regulation* which sets forth TN and TP maximum wasteload allocations for facilities designated as significant discharges, i.e., those with design flows of ≥ 0.5 MGD above the fall line and ≥ 0.1 MGD below the fall line.

Monitoring for Nitrates + Nitrites, Total Nitrogen, and Total Phosphorus are included in this permit. The monitoring is needed to ensure protection of the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for Total Nitrogen and Total Phosphorus are included in this individual permit. The annual averages are based on 9VAC25-40 and GM07-2008.

f) Effluent Limitations and Monitoring Summary

The effluent limitations are presented in the following tables. Limits were established for Flow, cBOD₅, Total Suspended Solids, Total Kjeldahl Nitrogen (TKN), pH, Dissolved Oxygen, *E.coli*, Total Phosphorus, and Total Nitrogen.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual and 9VAC25-820, *General VPDES Watershed Regulations for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia*.

The VPDES Permit Regulation (9VAC 25-31-30) and 40 CFR Part 133 require that the facility achieve at least 85% removal for BOD₅/cBOD₅ and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality based effluent limits and result in greater than 85% removal.

18. Antibacksliding:

The backsliding proposed with this reissuance conforms to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, 9VAC25-31-220.L., and 40 § CFR 122.44. The Total Recoverable Selenium and Total Recoverable Copper effluent limits at the 0.12 design flow are water quality based effluent limits. Also, the coefficient of variation used to derive the limits is better because there is new data. The revisions to the limits are allowed since the revisions comply with the water quality standards 402(o)(3) and they are consistent with antidegradation 303(d)(4)(B).

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Effluent Limitations/Monitoring Requirements:

Design flow is 0.12 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date, the permittee is authorized to discharge from Outfall Number 001. Such discharges shall be limited and monitored by the permittee as specified below.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		NA		NA	NL	Continuous	TIRE
pH	3	NA		NA		6.0 S.U.	8.5 S.U.	1/D	Grab
cBOD ₅	2,5	10 mg/L	4.5 kg/day	15 mg/L	6.8 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS)	2,5	10 mg/L	4.5 kg/day	15 mg/L	6.8 kg/day	NA	NA	3D/W	8H-C
DO	2,5	NA		NA		5.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,5	3.0 mg/L	1.4 kg/day	4.5 mg/L	2.0 kg/day	NA	NA	3D/W	8H-C
<i>E. coli</i> (Geometric Mean) ^a	3	126 n/100mls		NA		NA	NA	3D/W	Grab
Nitrate+Nitrite, as N	3, 6	NL mg/L		NA		NA	NA	2/M	8H-C
Total Nitrogen ^b	3, 6	NL mg/L		NA		NA	NA	2/M	Calculated
Total Nitrogen – Year to Date ^c	3, 6	NL mg/L		NA		NA	NA	1/M	Calculated
Total Nitrogen - Calendar Year ^c	3, 6	10 mg/L		NA		NA	NA	1/YR	Calculated
Total Phosphorus	3	NA		NA		NA	NA	2/M	8H-C
Total Phosphorus – Year to Date ^c	3, 6	NL mg/L		NA		NA	NA	1/M	Calculated
Total Phosphorus - Calendar Year ^b	3, 6	1.0 mg/L		NA		NA	NA	1/YR	Calculated
Zinc, Total Recoverable	2	NL µg/L		NL µg/L		NA	NA	1/M	Grab
Copper, Total Recoverable	2	NL µg/L		NL µg/L		NA	NA	1/M	Grab
Total Hardness (as CaCO ₃)	2	NL mg/L		NL mg/L		NA	NA	1/W	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgment
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Guidance Memo 00-2011 (VPDES Permit Manual; Section MN-2, Page 17)
6. 9VAC25-40 (Nutrient Regulation)

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.

3D/W = Three days per week.

2/M = Twice a month, at least 7 days apart.

1/W = Once per week.

1/M = Once per month.

1/YR = Once per year.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by $\geq 10\%$ or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. Collected between 10:00 a.m. and 4:00 p.m.

b. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

c. See Section 20.a. for the Nutrient Calculations. The calendar year annual averages for Total Nitrogen and Total Phosphorus are effective January 1st of the year after issuance of the CTO for the installation of nutrient technology.

20. Other Permit Requirements:

- a) Part I.B. of the permit contains quantification levels and compliance reporting instructions. 9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits

- b) Permit Section Part I.C., details the requirements of a Pretreatment Program. The Purkins Corner WWTP is a POTW with a current design capacity of 0.12 MGD. Since this facility's discharge is greater than 0.040 MGD, the facility is subject to following requirement in accordance with DEQ Guidance Memorandum No. 01.2026, Pretreatment Program Guidance Manual dated November 15, 2001, Section 5.2, Criteria Used by DEQ to Evaluate the Necessity of Program Development states,

Note: It is recommended that POTWs with design flows greater than or equal to 40,000 GPD conduct an IU survey and be evaluated for Pretreatment programs. The 40,000 flow figure has been a standard in Agency practice and is consistent with the increased operator oversight and testing requirements provided by VDH at this flow, as established in the Virginia Sewerage Regulations.

21. Other Special Conditions:

- a) 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.
- b) Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200 B.1. and B.2. for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain an up-to-date O & M Manual for the treatment works. Any changes in the practices and procedures followed by the permittee shall be documented in the O & M Manual within 90 days of the effective date of the changes. The permittee shall operate the treatment works in accordance with the O & M Manual and shall make the O & M Manual available to Department personnel for review during facility inspections. Within 30 days of a request by DEQ, the current O & M Manual shall be submitted to DEQ Northern Regional Office for review. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

- e) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation (9VAC25-31-200 C), and Board for Waterworks and Wastewater Works Operators Regulations (18VAC160-20 et seq.) requires licensure of operators. This facility requires a Class II operator.
- f) Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of I.
- g) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.
- h) Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.
- i) Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2., and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.
- j) E3/E4. 9VAC25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.
- k) Nutrient Reopener. 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

22. Changes to the Permit from the Previously Issued Permit:

- a) Special Conditions:
 - 1. The TMDL Special Condition has been added to the permit.
 - 2. Licensed Operator Requirements were changed from Class III to Class II in accordance with the 9 VAC 25-790 (Sewage Collection And Treatment Regulations).
 - 3. Updated O & M Manual special condition in accordance with DEQ guidance.
- b) Monitoring and Effluent Limitations:
 - 1. Effluent Total Hardness monitoring has been added to the permit due to the permittee adding calcium chloride to the treatment process to increase the effluent hardness.
 - 2. Total Recoverable Selenium effluent limitations and monitoring requirements were removed due to the re-evaluation of the new data presented. The backsliding proposed with this reissuance conforms with the anti-backsliding provisions of Section 402(o) of the Clean Water Act, 9VAC 25-31-220.L., and 40 § CFR 122.44.

3. Total Recoverable Copper effluent limitation and Total Recoverable Zinc were removed due to the re-evaluation of the new data presented. The backsliding proposed with this reissuance conforms to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, 9VAC 25-31-220.L., and 40 § CFR 122.44. However, effluent monitoring of Total Recoverable Copper and Total Recoverable Zinc was included because the permittee is adding calcium chloride to the treatment process to increase the effluent hardness and Total Recoverable Copper toxicity is dependent on the effluent's Total hardness concentration.
4. The TKN monthly and weekly maximum loadings were changed from pounds per day to kilograms per day.
5. The 0.50 MGD design flow tier effluent limitations and monitoring was removed from the permit per email dated December 1, 2011 from the consultant engineer for King George County Service Authority.
6. Total Nitrogen and Total Phosphorus Annual Average concentration limitations were added. These limits become effective January 1st of the year following the CTO for the nutrient removal technology.
7. *E. coli* monitoring and monthly geometric mean effluent limitation was added due to updates to the Water Quality Standards.
8. The pH effluent upper range was reduced from 9.0 SU to 8.5 SU.

23. Variances/Alternate Limits or Conditions:

There are no variances and/or alternate limits and/or conditions in this permit.

24. Public Notice Information:

First Public Notice Date: June 9, 2012

Second Public Notice Date: June 16, 2012

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3925, joan.crowther@deq.virginia.gov. See Attachment 13 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

25. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

This facility discharges directly to an unnamed tributary to Pine Hill Creek. The stream segment receiving the effluent is listed for impaired of dissolved oxygen in Category 4C of the 2010 approved 303(d) list. The impairment is the result of natural conditions. Category 4C states that a water is impaired or threatened but does not require a TMDL because the impairment is not caused by a pollutant and/or is determined to be caused by natural conditions.

TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

26. Additional Comments:

VPDES Permit Modification: April 2008 – At the request of the permittee, this VPDES Permit was modified to re-evaluate effluent limits due to the facility installing new equipment for chemical addition to enhance nitrification. As a result of modification in treatment process, there was new data which warranted a re-evaluation of the metals limitations. It was determined that no effluent limits were needed for Total Recoverable Lead and Total Recoverable Silver. Effluent limits for Total Recoverable Selenium and Total Recoverable Zinc were modified accordingly due to the new data presented and using the latest version of Virginia's Water Quality Standards.

Previous Board Action(s): This facility has had numerous reported exceedances of cBOD₅, TSS, TKN, *E. coli*, pH, Total Recoverable Copper, Total Recoverable Zinc, and Total Phosphorus during this current permit cycle (2006-2011) that resulted in the permittee entering into a Consent Special Order dated August 4, 2011, with DEQ. The Order requires that the facility achieve compliance with the permit effluent limitations within 60 days of DEQ issuance of a CTO for any modification or upgrade to the treatment works or no later than January 15, 2012 whichever occurs first. When the Order was in effect, the facility had interim limits for TSS, TKN, Dissolved Oxygen, and Total Recoverable Copper. Interim effluent limitations were established for Ammonia as Nitrogen.

Staff Comments: None.

Public Comment: During the public comment period, DEQ received comments from King George County Service Authority by letter dated June 26, 2012. Their comments dealt with 1) referencing the Consent Special Order dated August 4, 2011 in the fact sheet; 2) changing the receiving stream classification from swamp water to free flowing; 3) the geometric mean special condition language; 4) the Significant digit special condition; and 5) removal of the Pretreatment Special Condition.

These comments were address by letter dated July 12, 2012 to the King George County Service Authority. Responses are summarized as follows (in the same numerical order as listed above): 1) Reference to the Consent Special Order will remain in the fact sheet; 2) King George County Service Authority can provide the appropriate documentation to DEQ should they feel like this issue should be pursued; 3) the geometric mean special condition does address King George County Service Authority's concern regarding addressing data less than the detection level; 4) DEQ believes that the significant digit special condition is correct as it is written; and 5) DEQ has determined that the pretreatment special condition is still appropriate for this permit so it will remain.

No other public comments were received during the public comment period.

EPA Checklist: The checklist can be found in Attachment 14.

VA0070106 Purkins Corner Wastewater Treatment Plant
Fact Sheet Attachments

Attachment	Description
1	Flow Frequency Determination Memo dated August 23, 1996
2	Certificate to Construct dated May 6, 2011, Revised CTC May 1, 2012, CTO dated 5/1/12
3	Consent Special Order dated August 4, 2011
4	Facility Schematic/Diagram
5	Facility Site Inspection dated March 8, 2012
6	Planning Statement for Purkins Corner WWTP, dated December 22, 2011
7	Freshwater Water Quality Criteria/Wasteload Allocated Analysis dated December 8, 2011
8	Effluent pH and Temperature Data (January 2010 – August 2011)
9	Effluent Total Hardness Data (July 2008 – August 2011)
10	DGIF Threatened and Endangered Species Database Search dated October 7, 2011
11	Ammonia Effluent Calculation Results
12	Total Recoverable Copper, Total Recoverable Selenium, and Total Recoverable Zinc Effluent Calculations Results
13	Public Notice
14	EPA Checklist dated November 30, 2011

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination
Purkins Corner STP - #VA0070106

TO: Lyle Anne Collier, NRO

FROM: Paul Herman, WQAP *Paul*

DATE: August 23, 1996

COPIES: Ron Gregory, Charles Martin, File



The Purkins Corner STP discharges to the Pine Hill Creek near Purkins Corner, VA. Flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The values at the discharge point were determined by inspection of the USGS King George Quadrangle topographical map which shows the receiving stream as intermittent at the discharge point. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and the harmonic mean. The drainage area above the discharge point is 0.36 mi².

The discharge travels down the Pine Hill Creek approximately 1500 feet and enters a swamp. The flow frequencies for swamps are also 0.0 cfs. Special water quality standards or modeling considerations may be applicable to the discharge stream as it enters the swamp.

If you have any questions concerning this analysis, please let me know.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

Douglas W. Domenech
Secretary of Natural Resources

13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

May 6, 2010

King George County
Purkins Corner WWTP Improvements
PTL#24869, VPDES Permit VA0070106

Mr. Christopher Thomas
King George County Service Authority
10459 Courthouse Drive
King George, VA 22485

Dear Mr. Thomas:

In accordance with the Code of Virginia, Title 62.1, Section 62.1-44.19, attached please find the Certificate to Construct (CTC) for this project. This CTC is being issued based on the Application for Certificate to Construct dated April 26, 2010, and received by this office on April 30, 2010.

Receipt of this CTC does not relieve any owner of the responsibility to comply with any other applicable statutes or regulations, including local ordinances and zoning requirements.

Please be advised that a Certificate to Operate (CTO) is required by the Code before placing the system in operation. Application for the CTO can be found at the DEQ website:

<http://www.deq.virginia.gov/wastewater/MunicipalNonWQIFProcedures092009>

If you have any questions about this letter or the approval process, please contact me at (703)-583-3834 or alison.thompson@deq.virginia.gov.

Respectfully,


Alison Thompson
Water Permits Technical Reviewer

cc: VPDES Permit File VA0070106
VDH District Office, attn: Environmental Health Manager
King George County Building Official
Ignatius Mutoti, Retaw Engineering, 2903 Sagecreek Circle, Midlothian, VA23112

Attachment: CTC

**Virginia Department of Environmental Quality
APPLICATION for CERTIFICATE TO CONSTRUCT (CTC)**

For Municipal Sewage Collection, Treatment, and/or Reclamation Systems

RECEIVED
APR 30 2010

See Instructions. Do not submit plans and specifications. Submit 1 copy of this form with all attachments. Form will expand as you enter information.

VA DEQ - NRO

Project Title: (as it appears on plans) Purkins Corner Wastewater Treatment Plant Improvements	
P.E. Seal Date on Cover: 04/20/2010	
Specifications Title and Date: Purkins Corner Wastewater Treatment Plant Improvements	
Location of Project: .5 Miles SE of Routes 3 and 205 at the old King George County Landfill	County/City: King George
Receiving Wastewater Collection System(s): N/A	
Receiving Sewage Treatment Plant(s)/Reclamation System: N/A	
PROJECT OWNER:	PROJECT ENGINEER
King George County Service Authority	
Name & Title: Christopher F. Thomas	Name: IGNATIUS MUTOTI, PE, Sr. Engineer
Signature and date: <i>[Signature]</i> 4-26-10	Company Name: RETAW ENGINEERING
Address: 10459 Courthouse Drive King George, VA 22485	Address: 2903 SAGECREEK CIRCLE MIDLOTHIAN, VA 23112
Phone: (540) 775 8563	Phone: (804) 744 1792 / (804) 245 2979
Email: cthomas@co.kinggeorge.state.va.us	Email: Ignatius.mutoti@retaweng.com

For Sewage Treatment Works and Sewage Collection Systems:

Attach Project Description

Attach Letter(s) of Acceptance from Receiving Facility/Utility for sewage collection system projects

Attach Reliability Class: (1) For Pump Stations attach Reliability Class Worksheet. (2) For Sewage Treatment Plants note the Reliability Class rating from the VPDES or VPA permit and method of meeting reliability classification requirements.

For a sewage treatment plant project, provide the VPDES or VPA permit number: VA 0070106

Design Sewage Flow (Sewage Plant): (a) average daily flow (MGD): 0.12 (b) peak daily flow (MGD): 0.3

Design Sewage Flow (Pump Station): (a) average daily flow (MGD): N/A (b) peak hour flow (MGD): N/A

Please check the appropriate components of your project:

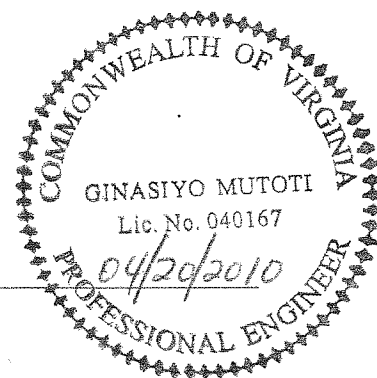
Gravity and/or Vacuum Sewer	<input type="checkbox"/>	New Sewage Treatment Plant.....	<input type="checkbox"/>
Pump Station(s)	<input type="checkbox"/>	Modification of Existing Sewage Treatment Plant	<input checked="" type="checkbox"/>
Force Main(s)	<input type="checkbox"/>	Expansion of Existing Sewage Treatment Plant	<input type="checkbox"/>

For Reclamation or Satellite Reclamation System, Attach Page 2: Page 2 Attached? Yes ☐ No ☒

The following statement must be signed and sealed by the Virginia licensed design engineer:

"As discussed in 9 VAC 25-790-240.C., the referenced design documents are in substantial compliance with Part III - Manual of Practice For Sewerage Systems and Treatment Works, of the Sewage Collection and Treatment Regulations (9 VAC 25-790-310 et seq.)"

[Signature]



Licensed Design Engineer's Signature and original seal (signed and dated)

☐ Design exceptions and justifications are attached in accordance with 9 VAC 25-790-240.C.

For DEQ use only:

In accordance with the Code of Virginia 1950, as amended, Title 62.1, Section 62.1-44.19, this form, signed by the appropriate DEQ representative, constitutes your Certificate to Construct. This Certificate is valid for a period of five years from the date of issuance. Other permits and authorizations may be necessary. Please contact your Regional DEQ Office if you have any questions.

Alison Thompson
Name


Signature

5/6/10
Date

24869
CTC PTL Number

Department of Environmental Quality Authorized Representative

Note: Once the project is complete, an application for a Certificate to Operate must be submitted to the appropriate DEQ Regional office.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

Douglas W. Domenech
Secretary of Natural Resources

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David K. Paylor
Director

Thomas A. Fahs
Regional Director

May 1, 2012

King George County
Purkins Corner WWTP Improvements
PTL#24869, VPDES Permit VA0070106

Mr. Christopher Thomas
King George County Service Authority
10459 Courthouse Drive
King George, VA 22485

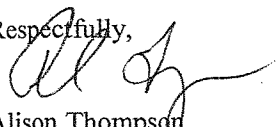
Re: REVISED Certificate to Construct

Dear Mr. Thomas:

In accordance with the Code of Virginia, Title 62.1, Section 62.1-44.19, attached please find the Revised Certificate to Construct (CTC) for this project. This Revised CTC supersedes the CTC dated May 6, 2010 for the Purkins Corner WWTP Improvements. This Revised CTC is being issued based on the Revised Application for Certificate to Construct dated March 16, 2012, and received by this office on March 21, 2012. The Revised CTC was submitted at the request of DEQ Permitting staff following the March 8, 2012 meeting between King George County staff and DEQ Permitting and Enforcement staff.

If you have any questions about this letter or the approval process, please contact me at (703)-583-3834 or alison.thompson@deq.virginia.gov.

Respectfully,

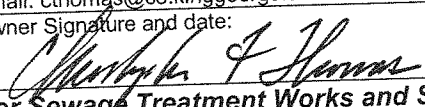

Alison Thompson
Water Permits Technical Reviewer

cc: VPDES Permit File VA0070106
VDH District Office, attn: Environmental Health Manager
King George County Building Official
Ignatius Mutoti, Retaw Engineering, 2903 Sagecreek Circle, Midlothian, VA 23112

Attachment: CTC

Virginia Department of Environmental Quality
APPLICATION for CERTIFICATE TO CONSTRUCT (CTC)
For Municipal Sewage Collection, Treatment, and/or Reclamation Systems

See Instructions. Do not submit plans and specifications. Submit 1 copy of this form with all attachments. Form will expand as you enter information.

Project Title: (as it appears on plans) Purkins Corner Wastewater Treatment Plant Improvements	
P.E. Seal Date on Cover: 05-20-2011	
Specifications Title and Date: Purkins Corner Wastewater Treatment Plant Improvements: November 15, 2010	
Location of Project: 0.5 Miles SE of Routes 3 and 205 at the Old King George Landfill	County/City: King George
Receiving Wastewater Collection System(s): N/A	
Receiving Sewage Treatment Plant(s)/Reclamation System: N/A	
PROJECT OWNER: King George County Service Authority	
Owner Contact Name: Christopher F. Thomas PE	PROJECT ENGINEER
Title: General Manager	Name: Ignatius Mutoti, PhD, PE
Address: 9207 Kings Highway, King George, VA 22485	Company Name: Retaw Engineering, LLC
	Address: 2903 Sagecreek Circle, Midlothian, VA 23112
Phone: (540) 775-8563	Phone: (804) 744-1792
Email: cthomas@co.kinggeorge.state.va.us	Email: ignatius.mutoti@retaweng.com
Owner Signature and date:  3-16-2012	

For Sewage Treatment Works and Sewage Collection Systems:

Attach Project Description

Attach Letter(s) of Acceptance from Receiving Facility/Utility for sewage collection system projects
Attach Reliability Class: (1) For Pump Stations attach Reliability Class Worksheet. (2) For Sewage Treatment Plants note the Reliability Class rating from the VPDES or VPA permit and method of meeting reliability classification requirements.

For a sewage treatment plant project, provide the VPDES or VPA permit number: VA0070106
 Design Sewage Flow (Sewage Plant): (a) average daily flow (MGD): 0.12 (b) peak daily flow (MGD): 0.30
 Design Sewage Flow (Pump Station): (a) average daily flow (MGD): N/A (b) peak hour flow (MGD): N/A

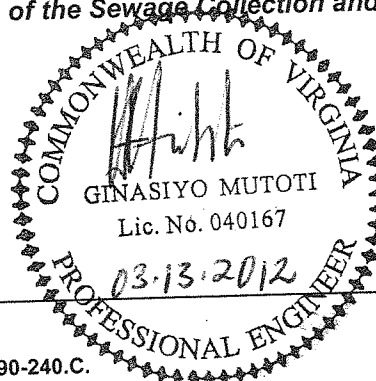
Please check the appropriate components of your project:

Gravity and/or Vacuum Sewer	<input type="checkbox"/>	New Sewage Treatment Plant.....	<input type="checkbox"/>
Pump Station(s).....	<input type="checkbox"/>	Modification of Existing Sewage Treatment Plant	<input checked="" type="checkbox"/>
Force Main(s).....	<input type="checkbox"/>	Expansion of Existing Sewage Treatment Plant	<input type="checkbox"/>

For Reclamation or Satellite Reclamation System, Attach Page 2: Page 2 Attached? Yes ☐ No ☒

The following statement must be signed and sealed by the Virginia licensed design engineer:

"As discussed in 9 VAC 25-790-240.C., the referenced design documents are in substantial compliance with Part III - Manual of Practice For Sewerage Systems and Treatment Works, of the Sewage Collection and Treatment Regulations (9 VAC 25-790-310 et seq.)"



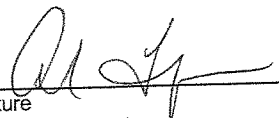
Licensed Design Engineer's Signature and original seal (signed and dated)

☒ Design exceptions and justifications are attached in accordance with 9 VAC 25-790-240.C.

For DEQ use only:

In accordance with the Code of Virginia 1950, as amended, Title 62.1, Section 62.1-44.19, this form, signed by the appropriate DEQ representative, constitutes your Certificate to Construct. This Certificate is valid for a period of five years from the date of issuance. Other permits and authorizations may be necessary. Please contact your Regional DEQ Office if you have any questions.

Alison Thompson
 Name


 Signature

5/1/12
 Date

24869
 CTC PTL Number

Department of Environmental Quality Authorized Representative

Note: Once the project is complete, an application for a Certificate to Operate must be submitted to the appropriate DEQ Regional office.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

Douglas W. Domenech
Secretary of Natural Resources

13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

May 1, 2012

King George County
Purkins Corner WWTP Improvements
PTL#25520, VPDES Permit VA0070106

Mr. Christopher Thomas
King George County Service Authority
10459 Courthouse Drive
King George, VA 22485

Dear Mr. Thomas:

In accordance with 9VAC25-790-190 of the Commonwealth of Virginia's *Sewage Collection and Treatment Regulations*, this letter transmits the Certificate to Operate (CTO) for **Purkins Corner WWTP Improvements** located in King George County. The CTO is being issued based on the Application for Certificate to Operate dated March 16, 2012, and received by this office on March 21, 2012 with supplemental information received April 12 and 13, 2012.

If you have any questions about this letter or the approval process, please contact me at (703)-583-3834 or alison.thompson@deq.virginia.gov.

Respectfully,

A handwritten signature in black ink, appearing to read "Alison Thompson".

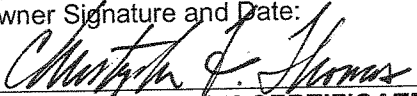
Alison Thompson
Water Permits Technical Reviewer

cc: VPDES Permit File VA0070106
VDH District Office, attn: Environmental Health Manager
King George County Local Building Official
Ignatius Mutoti, Retaw Engineering, 2903 Sagecreek Circle, Midlothian, VA 23112

Attachment: CTO

Department of Environmental Quality
APPLICATION for CERTIFICATE TO OPERATE
Under the Sewage Collection and Treatment Regulations 9 VAC 25-790
and/or the Water Reclamation and Reuse Regulation 9 VAC 25-740

See instructions. Submit 1 copy of this form and any attachments. Form will expand as you enter information.

Project Title: (as it appears on plans) Purkins Corner Wastewater Treatment Plant Improvements	
P.E. Seal Date on Cover: 05-20-2011	
Specifications Title and Date: Purkins Corner Wastewater Treatment Plant Improvements: November 15, 2010	
Location of Project: 1015 French Quarter, Oakland Park Subdivision	County/City: King George
Receiving Wastewater Collection System(s): N/A	
Receiving Sewage Treatment Plant(s): N/A	
PROJECT OWNER: King George County Service Authority	RESPONSIBLE ENGINEER
Owner Contact Name: Christopher F. Thomas PE	Name: Ignatius Mutoti, PhD, PE
Title: General Manager	Company Name: Retaw Engineering LLC
Address: 9207 Kings Highway, King George, VA 22485	Address: 2903 Sagecreek Circle, Midlothian, VA 23112
Phone: (540) 775-8563	Phone: (804) 744-1782
Email: cthomas@co.kinggeorge.state.va.us	Email: ignatius.mutoti@retaweng.com
Owner Signature and Date:  3-16-2012	

PTL NUMBER FROM CERTIFICATE TO CONSTRUCT: 24869

Attach Copy of the original Certificate to Construct if issued prior to November 9, 2008. If applicable, provide verification of compliance with any conditions in the Certificate to Construct.

Design Flow: (a) average daily flow (MGD): 0.12 (b) peak flow (MGD): 0.30

For sewage treatment plant, water reclamation or satellite reclamation projects, provide the VPDES/VPA Permit Number: VA0070106

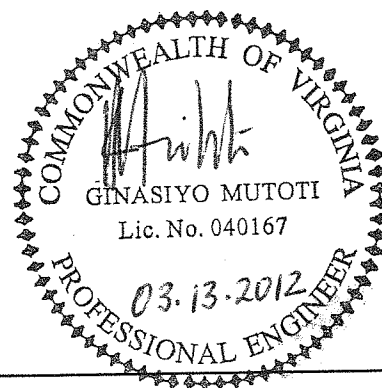
Is a new Discharge Monitoring Report (DMR) or other monthly monitoring report required? Yes ☒ No ☐

For Pump Stations, Sewage Treatment Plants, and Reclamation Systems, check Reliability Class: I ☒ II ☐ III ☐
 NA ☐

Two options are provided for the Statement of Completion, depending on whether the project is being authorized under the Sewage Collection and Treatment Regulations, the Water Reclamation and Reuse Regulations, or BOTH. Please check the appropriate box and then provide signature and seal below as indicated.

☒ The following statement of completion for issuance of a Certificate to Operate under the Sewage Collection and Treatment Regulations must be signed and sealed by the responsible engineer. (DEQ will not conduct a confirming inspection.)

"The construction of the project has been completed in accordance with the referenced plans and specifications or revised only in accordance with 9 VAC 25-790-180.B, and inspections have been performed to make this statement in accordance with Section 9 VAC 25-790-180.C.1 of the Sewage Collection and Treatment Regulations."



Licensed Engineer's Signature and original seal (signed and dated)

- ☐ The following statement of completion for issuance of a Certificate to Operate under the Water Reclamation and Reuse Regulation must be signed and sealed by the responsible engineer. (DEQ will not conduct a confirming inspection.)

"The construction of the project has been completed in accordance with the referenced plans and specifications or revised only in accordance with 9 VAC 25-740-120-B.2.b. and inspections have been performed to make this statement in accordance with Section 9 VAC 25-40-120.B.3.a. of the Water Reclamation and Reuse Regulations."

Licensed Engineer's Signature and original seal (signed and dated)

.....
For DEQ use only:

In accordance with Code of Virginia 1950, as amended, Title 62.1, Section 62.1-44.19, this form, signed by the appropriate DEQ representative, serves as the **Certificate to Operate** for the referenced project.

Allison Thompson
Name


Signature

5/1/12
Date

25520
CTO PTL Number

Department of Environmental Quality Authorized Representative

An Operation and Maintenance Manual must be submitted to the DEQ Regional Office in accordance with 9 VAC 25-790 for sewage treatment plants, 9 VAC 25-740 for water reclamation systems and satellite reclamation systems and VPDES or VPA permit requirements.

For pump stations, an Operation and Maintenance Manual must be maintained for the facility in accordance with 9 VAC 25-790, but is NOT to be submitted to DEQ. The pump station must be operated and maintained in accordance with that manual.



COMMONWEALTH of VIRGINIA

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www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

**STATE WATER CONTROL BOARD ENFORCEMENT ACTION
A SPECIAL ORDER BY CONSENT
ISSUED TO
KING GEORGE COUNTY SERVICE AUTHORITY
FOR THE
PURKINS CORNER WASTEWATER TREATMENT PLANT
(VPDES Permit No. VA0070106)
AND THE
OAKLAND PARK WASTEWATER TREATMENT PLANT
(VPDES Permit No. VA0086789)**

SECTION A: Purpose

This is a Consent Special Order issued under the authority of Va. Code §§ 62.1-44.15 between the State Water Control Board and King George County Service Authority regarding the Purkins Corner Wastewater Treatment Plant and the Oakland Park Wastewater Treatment Plant for the purpose of resolving certain violations of State Water Control Law and Regulations.

SECTION B: Definitions

Unless the context clearly indicates otherwise, the following words and terms have the meaning assigned to them below:

1. "Va. Code" means the Code of Virginia (1950), as amended.
2. "Board" means the State Water Control Board, a permanent citizens' board of the Commonwealth of Virginia as described in Va. Code §§ 10.1-1184 and 62.1-44.7.
3. "Department" or "DEQ" means the Department of Environmental Quality, an agency of the Commonwealth of Virginia as described in Va. Code § 10.1-1183.

4. "Director" means the Director of the Department of Environmental Quality.
5. "KGCSA" means the King George County Service Authority.
6. "NRO" means the Northern Regional Office of DEQ, located in Woodbridge, Virginia.
7. "O&M" means operations and maintenance.
8. "Oakland Park WWTP" means the Oakland Park Wastewater Treatment Plant located in King George County, Virginia.
9. "Oakland Permit" means Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0086789
10. "Order" means this document, also known as a Consent Special Order.
11. "Purkins Corner WWTP" means the Purkins Corner Wastewater Treatment Plant located in King George County, Virginia.
12. "Purkins Permit" means Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0070106.

SECTION C: Findings of Fact and Conclusions of Law

1. KGCSA owns and operates the Purkins Corner WWTP and the Oakland Park WWTP which are located in King George County, Virginia. The Purkins WWTP is the subject of the Purkins Permit, which authorizes KGCSA to discharge to Pine Hill Creek, located in the Potomac River Basin. The Oakland Park WWTP is the subject of the Oakland Permit, which authorizes KGCSA to discharge to Muddy Creek in the Rappahannock River Basin.
2. The Board has evidence to indicate that KGCSA violated VPDES Permit Regulation, Part 9 VAC 25-31-50(A) and the Purkins Permit as evidenced by discharge monitoring reports ("DMR") that show exceedances of permitted limits for TKN, TSS, Carbonaceous Biochemical Oxygen Demand (CBOD₅), pH, E. Coli, Total Phosphorus, Total Recoverable Copper, Total Recoverable Lead, Total Recoverable Selenium, Total Recoverable Silver, and Total Recoverable Zinc based upon the permitted limits, as follows:
 - a. TKN – Exceedances reported for February and March 2007, February 2008, April 2008, June 2008, October and December 2008, January 2009, February 2009, and April through November 2009, and January through April 2010;
 - b. TSS – Exceedances reported for January and February 2007, April 2007 and May 2007, January through March 2008, December 2008, January 2009,

- February 2009, and April 2009, January 2010, February 2010, May 2010, and June 2010;
- c. CBOD₅ – Exceedances reported for February 2007; February 2008; December 2008, and January through April 2009;
 - d. pH – Exceedances reported for January 2008;
 - e. E. Coli – Exceedances reported for February 2008, March 2008, April 2008, and March 2009;
 - f. Total Phosphorus – Exceedances reported for September 2008, October 2008, December 2008, and February through April 2009, July 2009, and January 2010;
 - g. Total Recoverable Copper-Exceedances reported for March 2007, May through July 2007, October 2007, December 2007, January through February 2008, July 2009, January 2010, and August 2010;
 - h. Total Recoverable Lead-Exceedances reported for September and October 2007;
 - i. Total Recoverable Selenium-Exceedances reported for July 2007;
 - j. Total Recoverable Silver-Exceedances reported for October 2007 and January 2008;
 - k. Total Recoverable Zinc-Exceedances reported for January through December 2007 and January 2008.
3. In addition to the foregoing permit limit exceedances at the Purkins WWTP:
- a. KGCSA failed to submit revised O&M manual following changes at the Purkins WWTP in violation of Part I, page 5, Section C.3 of the Permit.
 - b. KGCSA failed to timely correct deficiencies found in the UV system and noted in inspection reports dated April 25, 2008, May 22, 2008, July 18, 2008, September 23, 2008, and December 15, 2008 in violation of Part I, page 6, Section Q of the Permit.
4. The Board also has evidence to indicate that KGCSA violated VPDES Permit Regulation, Part 9 VAC 25-31-50.A and the Oakland Park Permit as evidenced by discharge monitoring reports that show exceedances of permitted effluent limits for Total Recoverable Copper, Total Kjeldahl Nitrogen (TKN), Total Suspended Solids (TSS), Total Phosphorus, Carbonaceous Biochemical Oxygen Demand (CBOD₅), and Dissolved Oxygen (DO) as follows:

- a. Copper (Reported as Total Recoverable and Dissolved) – Exceedances reported for January through May 2007, July through October 2007, January through September 2008, January 2009, August 2009 through October 2009, and June through September 2010;
 - b. TKN – Exceedances reported for January through May 2007, November 2007, January and February 2008, May 2008, October through December 2008, and January through March 2009;
 - c. TSS – Exceedances reported for November and December 2007, January 2008, and April 2008;
 - d. Total Phosphorus – Exceedance reported for April 2008 and May 2010;
 - e. DO – Exceedance for May 2007;
 - f. CBOD₅ – Exceedance for July 2009, March 2010, and June 2010;
 - g. CL2- Violation for September 2010
5. These exceedances and violations include all exceedances and violations known by the Board for the period of 2007 to 2010 for both Purkins Corner WWTP and Oakland Park WWTP.
 6. Based on the results of the DMRs and the inspections reports, the Board concludes that KGCSA has violated the Purkins Permit, the Oakland Permit and 9 VAC 25-31-50(A) by discharging treated sewage and municipal wastes from the Purkins WWTP and Oakland Park WWTP while concurrently failing to comply with the conditions of the Permits, as described in paragraphs C(2) through C(4) which include all known violations of KGCSA by the Board for the period of 2007 to November 2010 for both WWTPs.
 7. KGCSA asserts that it will be capable of meeting permit effluent limits once the plant upgrades are complete. In order for KGCSA to return to compliance, DEQ staff and representatives of KGCSA have agreed to the Schedule of Compliance, which is incorporated as Appendix A and Appendix B of this Order.

SECTION D: Agreement and Order

Accordingly, by virtue of the authority granted it in Va. Code §§ 62.1-44.15, the Board orders KGCSA, and KGCSA agrees to:

1. Perform the actions described in Appendices A, B, C, D, and E of this Order; and
2. Pay a civil charge of \$50,000 in settlement of the violations cited in this Order, to be paid as follows:

- a. KGCSA shall pay \$ 12,500 of the civil charge within 30 days of the effective date of this Order. Payment shall be made by check, certified check, money order or cashier's check payable to the "Treasurer of Virginia," delivered to:

Receipts Control
Department of Environmental Quality
Post Office Box 1104
Richmond, Virginia 23218

KGCSA shall include its Federal Employer Identification Number (FEIN) with the civil charge payment and shall indicate that the payment is being made in accordance with the requirements of this Order for deposit into the Virginia Environmental Emergency Response Fund (VEERF).

- b. KGCSA shall satisfy \$37,500 of the civil charge by satisfactorily completing the Supplemental Environmental Project (SEP) described Appendix C of this Order.
- c. The net project costs of the SEP to KGCSA shall not be less than the amount set forth in Paragraph D.2.b. If it is, KGCSA shall pay the remaining amount in accordance with Paragraph D.2.a of this Order, unless otherwise agreed to by the Department. "Net project cost" means the net present after-tax cost of the SEP, including tax savings, grants, and first-year cost reductions and other efficiencies realized by virtue of project implementation. If the proposed SEP is for a project for which the party will receive an identifiable tax savings (e.g., tax credits for pollution control or recycling equipment), grants, or first-year operation cost reductions or other efficiencies, the net project cost shall be reduced by those amounts. The costs of those portions of SEPs that are funded by state or federal low-interest loans, contracts, or grants shall be deducted.
- d. By signing this Order KGCSA certifies that it has not commenced performance of the SEP.
- e. KGCSA acknowledges that it is solely responsible for completing the SEP project. Any transfer of funds, tasks, or otherwise by KGCSA to a third party, shall not relieve KGCSA of its responsibility to complete the SEP as described in this Order.
- f. In the event it publicizes the SEP or the SEP results, KGCSA shall state in a prominent manner that the project is part of a settlement of an enforcement action.
- g. The Department has the sole discretion to:
 - i. Authorize any alternate, equivalent SEP proposed by the Facility; and
 - ii. Determine whether the SEP, or alternate SEP, has been completed in a satisfactory manner.

- h. Should the Department determine that KGCSA has not completed the SEP, or alternate SEP, in a satisfactory manner, the Department shall so notify KGCSA in writing. Within 30 days of being notified, KGCSA shall pay the amount specified in Paragraph D.2.b, above, as provided in Paragraph D.2.a, above.

SECTION E: Administrative Provisions

1. The Board may modify, rewrite, or amend the Order with the consent of KGCSA, for good cause shown by KGCSA, or on its own motion after notice and opportunity to be heard.
2. This Order only addresses and resolves those violations specifically identified herein. This Order shall not preclude the Board or the Director from taking any action authorized by law, including but not limited to: (1) taking any action authorized by law regarding any additional, subsequent, or subsequently discovered violations; (2) seeking subsequent remediation of the facility as may be authorized by law; or (3) taking subsequent action to enforce the Order. This Order shall not preclude appropriate enforcement actions by other federal, state, or local regulatory authorities for matters not addressed herein.
3. For purposes of this Order and subsequent actions with respect to this Order only, KGCSA admits to the jurisdictional allegations, and agrees not to contest, but neither admits nor denies, the findings of fact and conclusions of law in this Order.
4. KGCSA consents to venue in the Circuit Court of the City of Richmond for any civil action taken to enforce the terms of this Order.
5. KGCSA declares it has received fair and due process under the Administrative Process Act, Va. Code §§ 2.2-4000 *et seq.*, and the State Water Control Law and it waives the right to any hearing or other administrative proceeding authorized or required by law or regulation, and to any judicial review of any issue of fact or law contained herein. Nothing herein shall be construed as a waiver of the right to any administrative proceeding for, or to judicial review of, any action taken by the Board to enforce this Order.
6. Failure by KGCSA to comply with any of the terms of this Order shall constitute a violation of an order of the Board. Nothing herein shall waive the initiation of appropriate enforcement actions or the issuance of additional orders as appropriate by the Board or the Director as a result of such violations. Nothing herein shall affect appropriate enforcement actions by any other federal, state, or local regulatory authority.
7. If any provision of this Order is found to be unenforceable for any reason, the remainder of the Order shall remain in full force and effect.

8. KGCSA shall be responsible for failure to comply with any of the terms and conditions of this Order unless compliance is made impossible by earthquake, flood, other acts of God, war, strike, or such other occurrence. KGCSA shall show that such circumstances were beyond its control and not due to a lack of good faith or diligence on its part. KGCSA shall notify the DEQ Regional Director in writing when circumstances are anticipated to occur, are occurring, or have occurred that may delay compliance or cause noncompliance with any requirement of the Order. Such notice shall set forth:
 - a. the reasons for the delay or noncompliance;
 - b. the projected duration of any such delay or noncompliance;
 - c. the measures taken and to be taken to prevent or minimize such delay or noncompliance; and
 - d. the timetable by which such measures will be implemented and the date full compliance will be achieved.

Failure to so notify the Regional Director within 24 hours of learning of any condition above, which KGCSA intends to assert, will result in the impossibility of compliance, shall constitute a waiver of any claim to inability to comply with a requirement of this Order.

9. This Order is binding on the parties hereto, their successors in interest, designees and assigns, jointly and severally.
10. Any plans, reports, schedules or specifications attached hereto or submitted by KGCSA and approved by the Department pursuant to this Order are incorporated into this Order. Any non-compliance with such approved documents shall be considered a violation of this Order.
11. This Order shall become effective upon execution by both the Director or his designee and KGCSA. Notwithstanding the foregoing, KGCSA agrees to be bound by any compliance date which precedes the effective date of this Order.
12. This Order shall continue in effect until:
 - a. KGCSA petitions the Director or his designee to terminate the Order after it has completed all of the requirements of the Order and the Director or his designee approves the termination of the Order; or
 - b. The Director or Board terminates the Order in his or its sole discretion upon 30 days written notice to KGCSA.

Consent Order

Purkins Corner and Oakland Park, WWTPs

Page 8 of 15

Termination of this Order, or any obligation imposed in this Order, shall not operate to relieve KGCSA from its obligation to comply with any statute, regulation, permit condition, other order, certificate, certification, standard, or requirement otherwise applicable.

13. By its signature below, KGCSA voluntarily agrees to the issuance of this Order.

And it is so ORDERED this 4th day of August, 2011.



Thomas A. Faha, Regional Director
Department of Environmental Quality

----- (Remainder of Page Intentionally Blank) -----

Consent Order

Purkins Corner and Oakland Park, WWTPs

Page 9 of 15

KGCSA voluntarily agrees to the issuance of this Order.

By: Christopher F. Thomas

Date: June 22, 2011

Commonwealth of Virginia

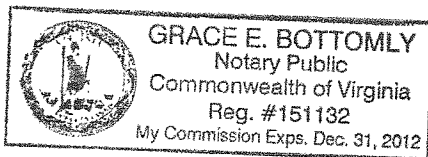
City/County of King George

The foregoing document was signed and acknowledged before me this 22nd day of June, 2011, by Christopher F. Thomas, who is
(name)

General Manager of KGCSA, on behalf of KGCSA.
(title)

Grace E. Bottomly
Notary Public

My commission expires: 12/31/2012



APPENDIX A

KGCSA shall at the Purkins WWTP:

1. Achieve compliance with permit effluent limitations within 60 days of DEQ issuance of a Certificate to Operate (CTO) for any modification or upgrade of the Purkins Corner WWTP or no later than January 15, 2012, whichever occurs first. The modification or upgrade shall be in accordance with the approved Certificate to Construct issued to KGCSA.
2. Submit monthly progress reports to DEQ outlining the projects and steps taken to achieve compliance as outlined in paragraph 1. Said monthly reports shall be due on the 10th of each month and submitted as an attachment with the monthly Discharge Monitoring Report.
3. Operate the WWTP in a manner that produces the best quality effluent of which it is capable in order to minimize impacts to state water during the period of time when it is implementing the corrective action referenced in paragraph one.

APPENDIX B

INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR THE PURKINS WWTP

During the period beginning with the effective date of this Order and lasting until either 60 days after CTO issuance for any modification and upgrade of the Purkins Corner WWTP or by January 15, 2012, whichever comes first, KGCSA shall monitor and limit the discharge from Outfall 001 at the WWTP in accordance with VPDES Permit No. VA0070106, except as specified below. These interim limits shall apply in lieu of the Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN), and Dissolved Oxygen (DO) and Total Recoverable Copper limits in the Permit and shall retroactively apply, if applicable, as of the first day of the month in which this Order becomes effective. These requirements shall be construed in light of the Board's Permit Regulation.

PARAMETER	PARAMETER LIMITATIONS				MONITORING REQUIREMENTS	
	Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Total Suspended Solids, TSS	30 mg/L N/L kg/day	45 mg/L N/L	N/A	N/A	3D/W	8H-C
Total Kjeldahl Nitrogen, TKN	N/L mg/L N/L lb/day	N/L	N/A	N/A	2/M	8H-C
Ammonia as N (Nov – Apr)	5.8 mg/L N/L kg/day	N/L	N/A	N/A	1D/W	8H-C
Ammonia as N (May – Oct)	3.0 mg/L N/L kg/day	N/L	N/A	N/A	1D/W	8H-C
Dissolved Oxygen	N/A	N/A	6.0 mg/L	N/A	1/D	Grab
E. coli (Geometric Mean) ⁽¹⁾	126 n/100 mLs	N/A	N/A	N/A	3D/W	Grab
Total Recoverable Copper	N/L	N/L	N/L	N/L	1/M	Grab

1/D = Once per day

1D/W = One day per week

3D/W = Three days a week

1/M = One day per month

2/M = Twice every month, > 7 days apart

8H-C = A flow proportional composite sample collected automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

(1) Between 10:00 am and 4:00 pm

N/L = No Limit

N/A = Not applicable

7. KGCSA shall submit to the Department written verification of the final overall and net project cost of the SEP in the form of a certified statement itemizing costs, invoices and proof of payment, or similar documentation within 45 days of the project completion date. For the purposes of this submittal, net project costs can be either the actual, final net project costs or the projected net project costs if such projected net project costs statement is accompanied by a CPA certification or certification from KGCSA's Chief Financial Officer concerning the projected tax savings, grants or first-year operation cost reductions or other efficiencies.
8. Documents to be submitted to the Department, other than the civil charge payment described in Section D of the Order, shall be sent to:

Sarah Baker
Enforcement Manager
DEQ NRO
13901 Crown Court
Woodbridge, Virginia 2219

APPENDIX E

SUPPLEMENTAL ENVIRONMENTAL PROJECT

In accordance with Va. Code § 10.1-1186.2, KGCSA shall perform the Supplemental Environmental Project (SEP) identified below in the manner specified in this Appendix.

1. The SEP to be performed by KGCSA is to disconnect the King George County Parks and Recreation Citizen Center from the existing septic system and connect to the public sanitary sewer system for conveyance to and treatment at the Purkins Corner WWTP
2. The SEP shall be completed according to the following schedule. This schedule may only be altered with DEQ approval:

Task	COMPLETE BY
1. Request Certificate to Construct	August 15, 2011
2. Complete Engineering	August 15, 2011
4. Submit to DEQ and VDOT any required approvals	November 15, 2011
5. Advertise for Construction	December 15, 2011
6. Open Bids; Obtain Board Approval to Execute Contract	January 15, 2011
7. Complete Construction	March 15, 2012
8. Request for Certificate to Operate	April 15, 2012

3. KGCSA shall submit progress reports to DEQ on the SEP on a monthly basis, due the 10th day of each month. If the above schedule cannot be met, KGCSA must thoroughly document in writing to DEQ the reasons for the failure within 10 days of KGCSA discovering that the schedule cannot be met. Any changes in the schedule must be with DEQ approval. If DEQ does not approve the altered schedule, KGCSA must then act in accordance with Item #5 below.
4. KGCSA shall submit a written final report on the SEP, verifying that the SEP has been completed in accordance with the terms of this Order, and certified either by a Certified Public Accountant or by a authorized representative of KGCSA. KGCSA shall submit the final report and certification to the Department within 45 days of completion of the SEP according to the schedule above in Item #2.
5. If the SEP has not or cannot be completed as described in the Order, KGCSA shall notify DEQ in writing no later than 10 days after KGCSA knows that the SEP has not or cannot be completed as described in this Order but no later than March 1, 2012. Such notification shall include:
 - a. an alternate SEP proposal, or
 - b. payment of the amount specified in Section D Paragraph 2.b as described in Section D Paragraph 2.a.
6. KGCSA hereby consents to reasonable access by DEQ or its staff to property or documents under the party's control, for verifying progress or completion of the SEP.

APPENDIX D

INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR THE OAKLAND WWTP

During the period beginning with the effective date of this Order and lasting until either 60 days after CTO issuance for any modification and upgrade of the Oakland Park WWTP or by January 15, 2012, whichever comes first, KGCSA shall monitor and limit the discharge from Outfall 001 at the WWTP in accordance with VPDES Permit No. VA0086789, except as specified below. These interim limits shall apply in lieu of the Total Recoverable Copper limits in the Permit and shall retroactively apply, if applicable, as of the first day of the month in which this Order becomes effective. These requirements shall be construed in light of the Board's Permit Regulation.

PARAMETER	PARAMETER LIMITATIONS				MONITORING REQUIREMENTS	
	Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Total Recoverable Copper	N/L	N/L	N/L	N/L	1/M	Grab

1/M = One day per month

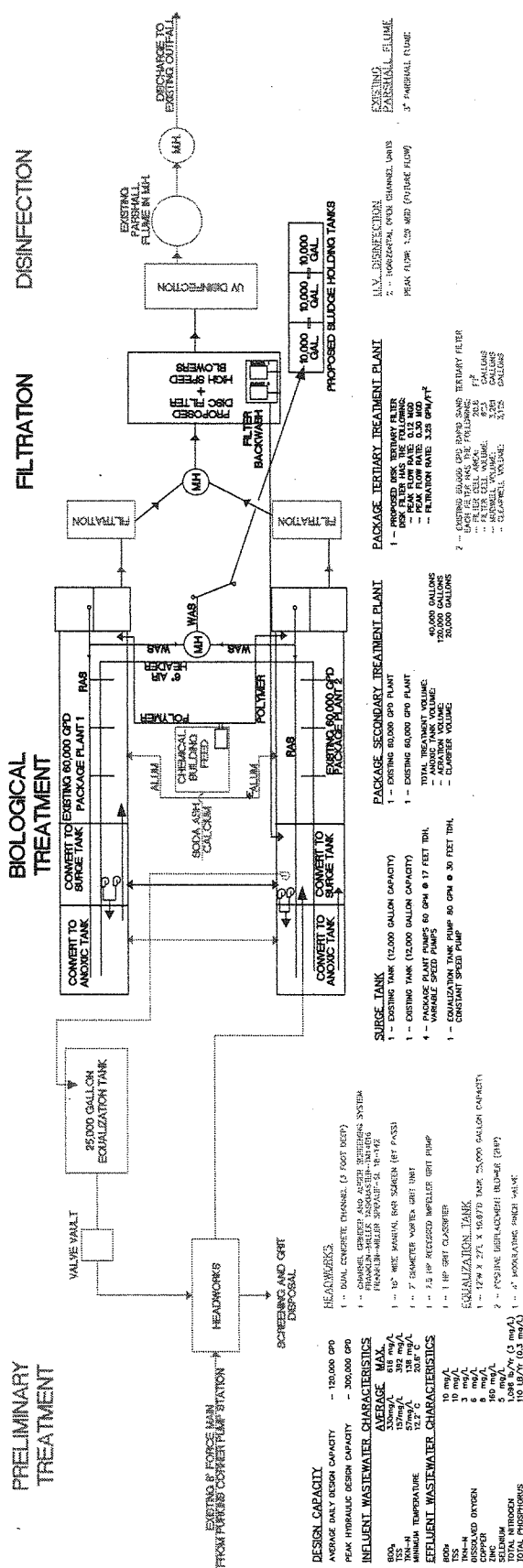
N/L = No Limit

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

APPENDIX C

KGCSA shall at the Oakland Park WWTP:

1. Achieve compliance with permit effluent limitations within 60 days of DEQ issuance of a Certificate to Operate (CTO) for any modification or upgrade of the Oakland Park WWTP or no later than January 15, 2012, whichever occurs first. The modification or upgrade shall be in accordance with the approved Certificate to Construct issued to KGCSA.
2. Submit monthly progress reports to DEQ outlining the projects and steps taken to achieve compliance as outlined in paragraph 1. Said monthly reports shall be due on the 10th of each month and submitted as an attachment with the monthly Discharge Monitoring Report.
3. Operate the WWTP in a manner that produces the best quality effluent of which it is capable in order to minimize impacts to state water during the period of time when it is implementing the corrective action referenced in paragraph one.



PROCESS FLOW DIAGRAM
NOT TO SCALE

DESCRIPTIONS OF CHEMICALS USES AT THE PURKINS CORNER WASTEWATER TREATMENT PLANT

The following are descriptions of the chemical usage and points of application at the Purkins Corner WWTP's.

Alum (Aluminum sulfate = $Al_2(SO_4)_3 \cdot 14H_2O$)

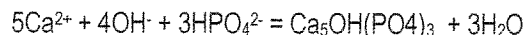
The Purkins Corner WWTP has a phosphorus limit of 0.3 mg/L. This limit is derived from the wastewater load allocations (WLA) under the Chesapeake Bay Nutrient Regulations. In order to meet this limit, alum solution is added to the wastewater. The alum solution is added to the mixed liquor just prior to entering the clarifiers to precipitate, settle, and remove phosphorus. The alum reacts with ortho-phosphorus to form a chemical sludge, aluminum phosphorus ($AlPO_4$). The alum sludge is removed when it settles in the clarifiers along with the biological sludge. The sludge is temporarily stored in the sludge holding tanks before being hauled to the Dahlgren Wastewater Treatment Plant for further sludge digestion and final disposal. The solution is prepared by adding two (2) 50 lb bags to every 200 Gallons of water (1 ml = 60 mg Alum). In addition to chemically enhancing phosphorus removal to meet its WLA, the Purkins Corner WWTP "bubbles" its phosphorus WLA with the Dahlgren WWTP and the Fairview Beach STP.

Facility stores about 60 – 50 lb bags (dry) at a time

Calcium Chloride ($CaCl_2$)

Calcium Chloride is added to enhance the precipitation of phosphorus. As an additional benefit, the total hardness is increased to provide a reduction in metals thru precipitation and reduce the toxic effects of said metals, such as copper and zinc, on the receiving stream. In fact, any permitted metals limit is proportional to the effluent hardness. Calcium chloride solution is added continuously to the Surge tank to maintain a target level of effluent hardness. The existing average effluent total hardness for the Purkins Corner WWTP is 142 mg/L as $CaCO_3$. Upon completion of the plant upgrades, an average effluent total hardness of 150 to 200 mg/L will be maintained.

In the presence of hydroxyl ions (OH^-), calcium and orthophosphate reacts to form hydroxyapatite precipitate as follows (source: Wastewater Treatment Plant Design, Vesilind, WEF & IWA, 2003):



Facility stores about 60 – 50 lb bags (dry) at a time

Polymer

Polymer enhances the performance of both the clarifiers and filters for reducing the total suspended solids concentration in the effluent. This is particularly important and desirable when "pin" floc is observed in the clarifiers. The existing plant currently feeds a very small dose of Clarifloc, a cationic liquid polymer to the mixed liquor immediately prior to entering the clarifiers as needed to improve the sludge settling rate and filter performance. Polymer helps bind and increase particle size of the biological and chemical floc particles. This increases the settling rate and provides a more stable sludge blanket. This is particularly advantageous during colder temperature periods. Smaller floc particles may not be filtered out and could increase the effluent total suspended solids concentration. The current upgrades include a liquid polymer feed system that will add polymer more accurately, maintain a consistent dose, and improve the performance of both the clarifiers and filters.

Facility stores about 1-2 barrels (liquid) at a time



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

Douglas W. Domenech
Secretary of Natural Resources

13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

March 23, 2012

Mr. Chris Thomas
King George County Service Authority (KGCSA)
9207 Kings Highway
King George, VA 22485

Re: Purkins Corner WWTP, Permit # VA0070106

Dear Mr. Thomas;

Attached is a copy of the Inspection Report generated from the Facility Recon Inspection conducted at Purkins Corner – Wastewater Treatment Plant (WWTP) on March 1, 2012. This letter is not intended as a case decision under the Virginia Administrative Process Act, Va. Code § 2.2-4000 et seq. (APA).

Additional inspections may be conducted to confirm that the facility is in compliance with permit requirements.

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Regional Office at (703) 583-3882 or by E-mail at Sharon.Allen@deq.virginia.gov.

Sincerely,

A handwritten signature in cursive script that reads "Sharon Allen".

Sharon Allen
Environmental Specialist II

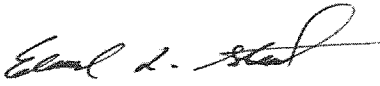
cc: Permits / DMR File

Electronic copy sent:

Compliance Manager, Compliance Auditor, Enforcement – DEQ
Jeff Hockaday- KGCSA

Virginia Department of Environmental Quality

RECON INSPECTION REPORT

FACILITY NAME: Purkins Corner WWTP		INSPECTION DATE: March 1, 2012		
		INSPECTOR S. Allen		
PERMIT No.: VA0070106		REPORT DATE: March 23, 2012		
TYPE OF FACILITY: <input checked="" type="checkbox"/> Municipal <input type="checkbox"/> Major <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Minor <input type="checkbox"/> Federal <input type="checkbox"/> Small Minor <input type="checkbox"/> HP <input type="checkbox"/> LP	TIME OF INSPECTION:		Arrival 09:15	Departure 10:20
	TOTAL TIME SPENT (including prep & travel)		7 hours	
PHOTOGRAPHS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		UNANNOUNCED INSPECTION? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
REVIEWED BY / Date:  3/21/12				
PRESENT DURING INSPECTION: Joan Crowther- DEQ Chris Thomas, Jeff Hockaday- KGCSA Ignatius Mutoti – Retaw Engineering Tony Knight- East Coast Utility Contractors, Ltd.				

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

- This site visit was conducted to see the recently completed upgrades to the facility.
- We toured the plant with KGCSA and contracted staff. Photos by S. Allen.
- Plant alarms have been tied into both SCADA and the auto dialer to notify KGCSA staff of problems after-hours or when operators are off-site.
- The plant has one headworks, and then flow can be split between two treatment trains (plants) with the same components. Sand filter effluent from the two plants is combined prior to going through the new disk filters, the UV system, and then through Outfall 001.
- Both plants were on-line. There did appear to be a lot of grease entering the WWTP.
- At the headworks, about 6 inches of concrete was chipped out in order to lower and adjust the angle of the screening auger. Mr. Thomas stated that it is working much better.
- Screened influent enters the new surge tank in each plant, from which it enters the new anoxic zones. If the water level in the surge tank exceeds a preset level, excess flow is pumped to the stand-alone EQ tank, where it is held until it can be metered back into the treatment plants.
- The Variable Frequency Drives (VFDs) were re-calibrated in order to better balance flows between the two plants.
- A new mixer and new ORP in-line sensor have been installed in the anoxic zone of each plant. The ORP in eastern plant may not be operating properly, Mr. Thomas mentioned a possible grounding fault, and said that the operators will get a hand held meter to double check readings.

VA DEQ Recon Inspection Report

Permit #

VA0070106

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

- The water in the aeration basin was a medium brown color, with low foam (photo 5).
- Both plants share the two new turbo blowers, which are very quiet and energy efficient (photo 8). One blower operates at a time, rotated weekly. In-line DO sensors and valve (photo 4) balance air between the 2 plants to keep the dissolved oxygen in the aeration basins at a pre-set level.
- A new air lift sludge WAS line has been installed from the clarifiers to the sludge pit (photo 6), from where WAS is sent to the new 30,000 gallon sludge holding tanks (photo 7). Liquid WAS is pumped and hauled to Dahlgren WWTP.
- Staff plans to replace the diffusers in plant sand filters. Sand filter effluent passes through new Aqua Disk cloth filters- 4 disks in filter.
- Chemical feed room- there are two mixing tanks for Alum and Calcium Chloride. Multiple bags of each additive were on hand. The tank currently used for mixing calcium chlorine is marked "SODA ASH" (photo 9). Mr. Thomas and Mr. Hockaday stated that they are not using soda ash and will have the tank re-labeled. No polymer is being added.
- There are two composite samplers set up at the effluent. Mr. Hockaday said the refrigerated compartment doesn't work on one but the programmer and peristaltic pump does. They got the new sampler for the refrigerated chamber, using peristaltic pump in the old sampler to collect sample, but delivered to the new sample chamber.
- We checked outfall area. This area is much drier than noted during past inspections. Mr. Thomas said that the access road was washed out during Tropical Storm Lee. He also stated that the old culverts were not installed properly and undersized (one 29" pipe), which resulted in the stream backing up and creating the marsh/wetland area and Outfall 001 being submerged a lot of time. When the road was repaired, the crew put in new culverts for the receiving stream. The new culvert consists of two 48" pipes under the roadway.

Permit #	VA0070106
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EFFLUENT FIELD DATA: NA

Flow	<input type="text"/> MGD	Dissolved Oxygen	<input type="text"/> mg/L	TRC (Contact Tank)	<input type="text"/> mg/L
pH	<input type="text"/> S.U.	Temperature	<input type="text"/> °C	TRC (Final Effluent)	<input type="text"/> mg/L
Was a Sampling Inspection conducted? <input type="checkbox"/> Yes (see Sampling Inspection Report) <input checked="" type="checkbox"/> No					

CONDITION OF OUTFALL AND EFFLUENT CHARACTERISTICS:

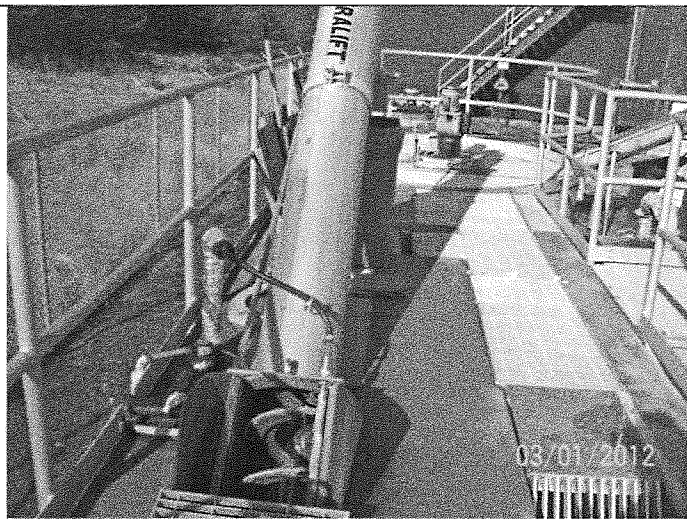
1. Type of outfall:	<input checked="" type="checkbox"/> Shore based	<input type="checkbox"/> Submerged	Diffuser?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Are the outfall and supporting structures in good condition?				<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
3. Final Effluent (evidence of following problems):	<input type="checkbox"/> Sludge bar		<input type="checkbox"/> Grease		
	<input type="checkbox"/> Turbid effluent	<input type="checkbox"/> Visible foam	<input type="checkbox"/> Unusual color	<input type="checkbox"/> Oil sheen	
4. Is there a visible effluent plume in the receiving stream?				<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5. Receiving stream:	<input checked="" type="checkbox"/> No observed problems			<input type="checkbox"/> Indication of problems (explain below)	
<u>Comments:</u>					

REQUEST for CORRECTIVE ACTION:

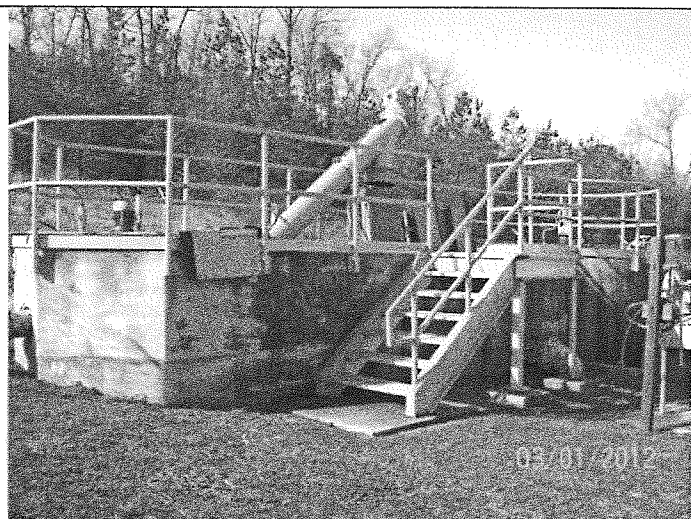
1. None at this time

NOTES and COMMENTS:

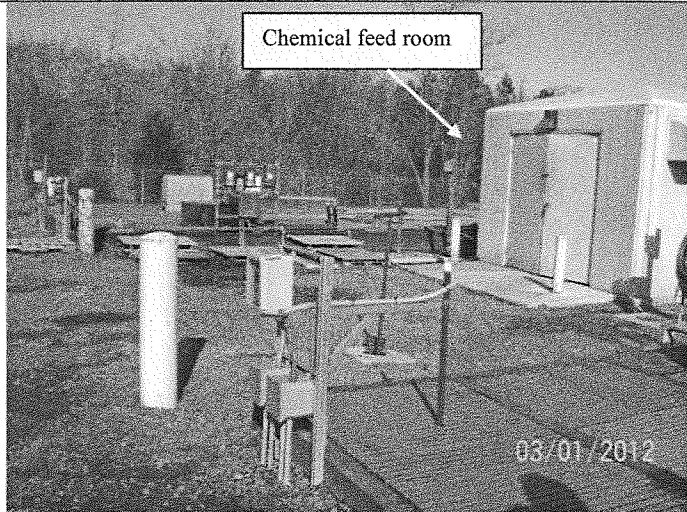
A revised O&M manual for this facility will be required to be submitted to DEQ's NRO once the CTO is issued.
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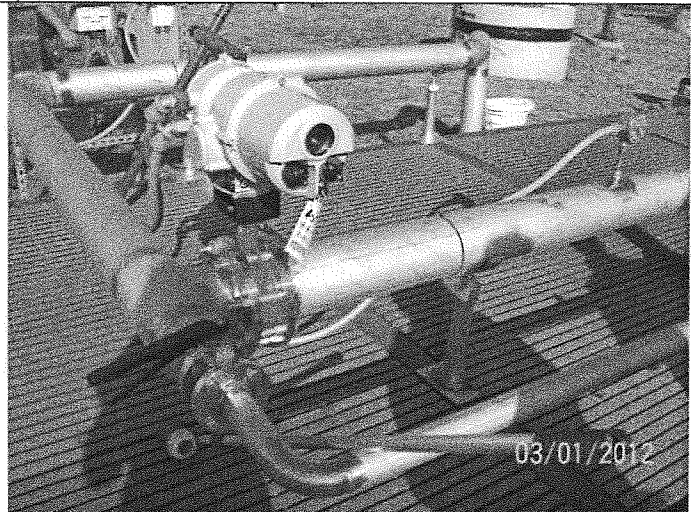
1) Re-adjusted screening auger.



2) Headworks.



3) Parallel treatment plants.



4) DO sensor and valve.



5) Aeration Basin (photo adjusted for brightness/contrast).

Facility name: Purkins Corner STP
 VPDES Permit No. VA0070106
 Site Inspection Date: March 1, 2012
 Photos & Layout by: S. Allen



6) New WAS air lift line and WAS pit.



7) Sludge holding tanks.



8) New turbo blowers.



9) Mixing tanks for calcium chloride and Alum.



10) Outfall 001.

Facility name: Purkins Corner STP
 VPDES Permit No. VA0070106
 Site Inspection Date: March 1, 2012
 Photos & Layout by: S. Allen



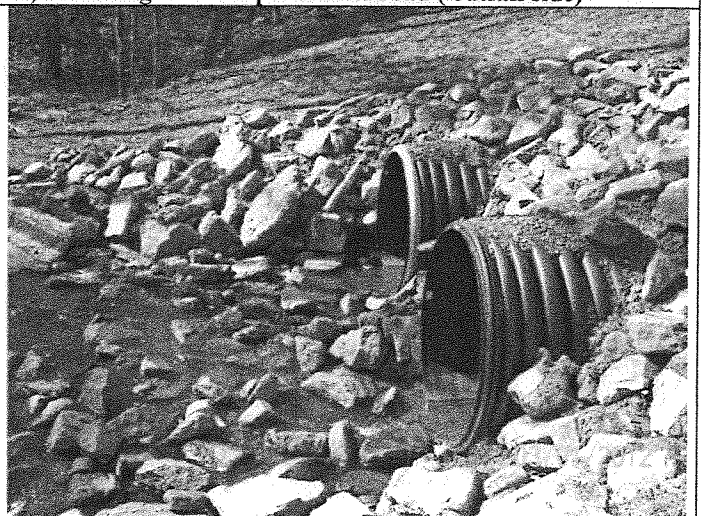
11) Receiving stream at Outfall 001.



12) receiving stream upstream of road (outfall side)



13) Receiving stream downstream of road.



14) New stream culverts under road.

Facility name: Purkins Corner STP
Site Inspection Date: March 1, 2012

VPDES Permit No. VA0070106
Photos & Layout by: S. Allen

Page 3 of 3

To: Joan C. Crowther
From: Katie Conaway/Jennifer Carlson

Date: December 22, 2011
Subject: Planning Statement for Purkins Corner Wastewater Treatment Plant
Permit Number: VA0070106

Discharge Type: Minor, Municipal
Discharge Flow: 0.12 and 0.5 MGD

Receiving Stream: Unnamed Tributary to Pine Hill Creek (XHK)
Latitude / Longitude: 38°15'13"/77° 9' 23"
Streamcode: 1aXHK
Waterbody: VAP-A31R
Water Quality Standards: Class VII, Section 1a
Rivermile: 0.38
Drainage Area: 0.36 mi²

1. Is there monitoring data for the receiving stream?

There is no monitoring data for the receiving stream, an Unnamed Tributary to Pine Hill Creek (XHK).

- If yes, please attach latest summary.
- If no, where is the nearest downstream monitoring station.

The nearest downstream DEQ monitoring station with ambient data is Station 1aPIN007.24, located on Pine Hill Creek at the Route 301 bridge crossing. This station is located approximately 0.91 rivermiles downstream from the outfall of VA0070106. The following is a monitoring summary for this station, as taken from the 2010 Integrated Assessment:

Pine Hill Creek Watershed: Class VII, Section 1a, Special Standards: none

Water Quality Monitoring Stations:

*1APIN000.57 (Ambient)
1APIN003.08 (TMDL)
1PIN004.94 (TMDL)
1APIN007.24 (TMDL)
1AXJU000.19 (TMDL)
1APIN006.17 (Special Study)*

Pine Hill Creek was identified in Appendix B of the June 1999 Consent Decree as a water for listing consideration; pH was listed as the parameter of concern. During the 2002 cycle, the segment was assessed as impaired of the Aquatic Life Use support goals based on DO exceedances and pH exceedances at the Route 205 bridge (1APIN000.57) and widespread pH exceedances upstream. The pH TMDL was due in 2010; the DO TMDL was due in 2014.

During the 2006 cycle, two Natural Condition studies were performed on Pine Hill Creek for DO and pH. The reports recommended reclassification as Class VII swamp waters.

The Water Quality Standards were revised during the 2010 cycle and Pine Hill Creek was reclassified. The segment now meets the pH standard for swamp waters and will be delisted. The segment will remain Category 4C for DO.

In addition, in 2004 the segment was listed as having an "observed effect" due to an exceedance of the cadmium sediment screening value in a sample taken in 1999. Further monitoring is recommended because the result (5.00 ppm) was just above the probably effect concentration (PEC) (4.98 ppm).

2. Is the receiving stream on the current 303(d) list?

No.

- If yes, what is the impairment?

N/A

- Has the TMDL been prepared?

N/A

- If yes, what is the WLA for the discharge?

N/A

- If no, what is the schedule for the TMDL?

N/A

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

Yes.

- If yes, what is the impairment?

Aquatic Life Use Impairment: Low Dissolved Oxygen.

- Has a TMDL been prepared?

No TMDL is required because the Pine Hill Creek Watershed was reclassified in the Water Quality Standards as being Class VII swamp waters. Low levels of dissolved oxygen are naturally occurring in swamp waters.

- Will the TMDL include the receiving stream?

N/A

- Is there a WLA for the discharge?

No.

- What is the schedule for the TMDL?

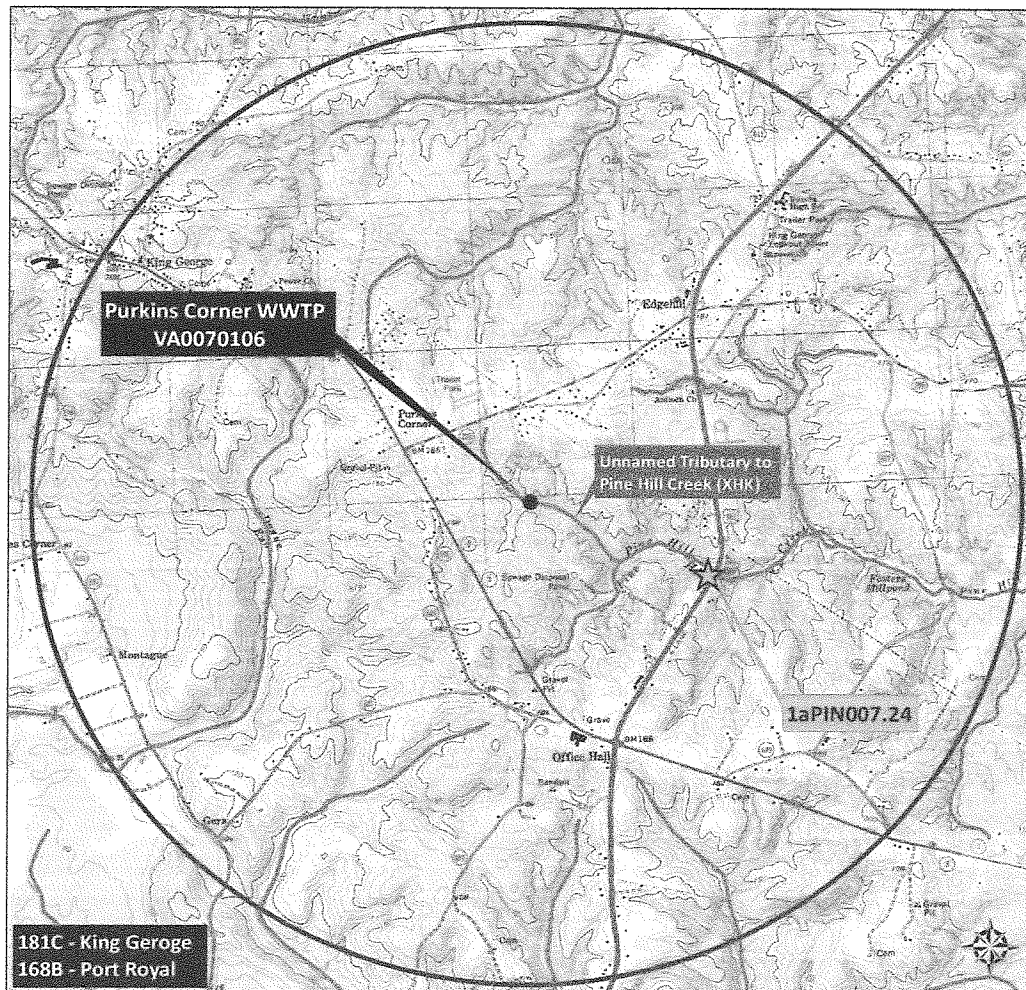
N/A

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit? Note here if you need a drainage area done or a list of Individual or General Permits found within the waterbody.

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

5. Fact Sheet Requirements – Please provide information on other VPDES permits or VADEQ monitoring stations located within a 2 mile radius of the facility. In addition, please provide information on any drinking water intakes located within a 5 mile radius of the facility.

There are no VPDES permitted facilities within a 2 mile radius of this facility. The only DEQ monitoring station within a 2 mile radius of this facility is Station 1aPIN007.24, located on Pine Hill Creek at the Route 301 bridge crossing. There are no drinking water intakes within a 5 mile radius of this facility.



FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Purkins Corner 2009

Permit No.: VA0070106

Receiving Stream: Pine Hill Creek, UT

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information			Stream Flows			Mixing Information			Effluent Information		
Mean Hardness (as CaCO ₃) =		mg/L	1Q10 (Annual) =	0 MGD		Annual - 1Q10 Mix =	0 %		Mean Hardness (as CaCO ₃) =	106 mg/L	
90% Temperature (Annual) =		deg C	7Q10 (Annual) =	0 MGD		- 7Q10 Mix =	0 %		90% Temp (Annual) =	26 deg C	
90% Temperature (Wet season) =		deg C	30Q10 (Annual) =	0 MGD		- 30Q10 Mix =	0 %		90% Temp (Wet season) =	deg C	
90% Maximum pH =		SU	1Q10 (Wet season) =	0 MGD		Wet Season - 1Q10 Mix =	0 %		90% Maximum pH =	7.2 SU	
10% Maximum pH =		SU	30Q10 (Wet season) =	0 MGD		- 30Q10 Mix =	0 %		10% Maximum pH =	6.5 SU	
Tier Designation (1 or 2) =		1	30Q5 =	0 MGD					Discharge Flow =	0.12 MGD	
Public Water Supply (PWS) Y/N? =		n	Harmonic Mean =	0 MGD							
Trout Present Y/N? =		n	Annual Average =	0 MGD							
Early Life Stages Present Y/N? =		y									

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)
Acenaphthene	0	--	--	na	2.7E+03	--	--	na	--	--	--	--	na	--	--	2.7E+03
Acrolein	0	--	--	na	7.8E+02	--	--	na	--	--	--	--	na	--	--	7.8E+02
Acrylonitrile ^c	0	--	--	na	6.6E+00	--	--	na	--	--	--	--	na	--	--	6.6E+00
Aldrin ^c	0	3.0E+00	--	na	1.4E-03	3.0E+00	--	na	--	--	--	--	na	3.0E+00	--	1.4E-03
Ammonia-N (mg/l) (Yearly)	0	2.95E+01	2.57E+00	na	--	3.0E+01	2.6E+00	na	--	--	--	--	na	3.0E+01	2.6E+00	--
Ammonia-N (mg/l) (High Flow)	0	2.95E+01	5.39E+00	na	--	3.0E+01	5.4E+00	na	--	--	--	--	na	3.0E+01	5.4E+00	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	--	--	--	--	na	--	--	1.1E+05
Antimony	0	--	--	na	4.3E+03	--	--	na	--	--	--	--	na	--	--	4.3E+03
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	na	3.4E+02	1.5E+02	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	na	--	--	--
Benzene ^c	0	--	--	na	7.1E+02	--	--	na	--	--	--	--	na	--	--	7.1E+02
Benzidine ^c	0	--	--	na	5.4E-03	--	--	na	--	--	--	--	na	--	--	5.4E-03
Benzo (a) anthracene ^c	0	--	--	na	4.9E-01	--	--	na	--	--	--	--	na	--	--	4.9E-01
Benzo (b) fluoranthene ^c	0	--	--	na	4.9E-01	--	--	na	--	--	--	--	na	--	--	4.9E-01
Benzo (k) fluoranthene ^c	0	--	--	na	4.9E-01	--	--	na	--	--	--	--	na	--	--	4.9E-01
Benzo (a) pyrene ^c	0	--	--	na	4.9E-01	--	--	na	--	--	--	--	na	--	--	4.9E-01
Bis(2-Chloroethyl) Ether	0	--	--	na	1.4E+01	--	--	na	--	--	--	--	na	--	--	1.4E+01
Bis(2-Chloroisopropyl) Ether	0	--	--	na	1.7E+05	--	--	na	--	--	--	--	na	--	--	1.7E+05
Bromofom ^c	0	--	--	na	3.6E+03	--	--	na	--	--	--	--	na	--	--	3.6E+03
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	--	--	--	--	na	--	--	5.2E+03
Cadmium	0	4.2E+00	1.2E+00	na	--	4.2E+00	1.2E+00	na	--	--	--	--	na	4.2E+00	1.2E+00	--
Carbon Tetrachloride ^c	0	--	--	na	4.4E+01	--	--	na	--	--	--	--	na	--	--	4.4E+01
Chlordane ^c	0	2.4E+00	4.3E-03	na	2.2E-02	2.4E+00	4.3E-03	na	2.2E-02	--	--	--	na	2.4E+00	4.3E-03	--
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	na	8.6E+05	2.3E+05	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	na	1.9E+01	1.1E+01	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	na	--	--	2.1E+04

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wastewater Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^c	0	--	--	na	3.4E+02	--	--	na	3.4E+02	--	--	--	--	--	--	--	na	--	--	na	3.4E+02
Chloroform ^c	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	na	--	--	na	2.9E+04
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	na	--	--	na	4.3E+03
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	--	--	--	--	--	na	--	--	na	4.0E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	8.3E-02	4.1E-02	--	na	--	--	na	--
Chromium III	0	6.0E+02	7.8E+01	na	--	6.0E+02	7.8E+01	na	--	--	--	--	--	6.0E+02	7.8E+01	--	na	--	--	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	1.6E+01	1.1E+01	--	na	--	--	na	--
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	na	--	--	na	--
Chrysene ^c	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	na	--	--	na	4.9E-01
Copper	0	1.4E+01	9.4E+00	na	--	1.4E+01	9.4E+00	na	--	--	--	--	--	1.4E+01	9.4E+00	--	na	--	--	na	--
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	2.2E+01	5.2E+00	na	2.2E+05	--	--	--	--	2.2E+01	5.2E+00	--	na	--	--	na	2.2E+05
DDD ^c	0	--	--	na	8.4E-03	--	--	na	8.4E-03	--	--	--	--	--	--	--	na	--	--	na	8.4E-03
DDE ^c	0	--	--	na	5.9E-03	--	--	na	5.9E-03	--	--	--	--	--	--	--	na	--	--	na	5.9E-03
DDT ^c	0	1.1E+00	1.0E-03	na	5.9E-03	1.1E+00	1.0E-03	na	5.9E-03	--	--	--	--	1.1E+00	1.0E-03	--	na	--	--	na	5.9E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	1.0E-01	--	na	--	--	na	--
Dibenz(a,h)anthracene ^c	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	na	--	--	na	4.9E-01
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	na	--	--	na	1.2E+04
Dichloromethane	0	--	--	na	1.6E+04	--	--	na	1.6E+04	--	--	--	--	--	--	--	na	--	--	na	1.6E+04
(Methylene Chloride) ^c	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	na	--	--	na	1.7E+04
1,2-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	na	--	--	na	2.6E+03
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	na	--	--	na	2.6E+03
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	na	--	--	na	2.6E+03
3,3-Dichlorobenzidine ^c	0	--	--	na	7.7E-01	--	--	na	7.7E-01	--	--	--	--	--	--	--	na	--	--	na	7.7E-01
Dichlorobromomethane ^c	0	--	--	na	4.6E+02	--	--	na	4.6E+02	--	--	--	--	--	--	--	na	--	--	na	4.6E+02
1,1-Dichloroethane ^c	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	na	--	--	na	9.9E+02
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	na	--	--	na	1.7E+04
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	1.4E+05	--	--	--	--	--	--	--	na	--	--	na	1.4E+05
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	7.9E+02	--	--	--	--	--	--	--	na	--	--	na	7.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	na	--	--	na	--
1,2-Dichloropropane ^c	0	--	--	na	3.9E+02	--	--	na	3.9E+02	--	--	--	--	--	--	--	na	--	--	na	3.9E+02
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	--	--	--	--	--	na	--	--	na	1.7E+03
Dieldrin ^c	0	2.4E-01	5.6E-02	na	1.4E-03	2.4E-01	5.6E-02	na	1.4E-03	--	--	--	--	2.4E-01	5.6E-02	--	na	--	--	na	1.4E-03
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	1.2E+05	--	--	--	--	--	--	--	na	--	--	na	1.2E+05
Di-2-Ethylhexyl Phthalate ^c	0	--	--	na	5.9E+01	--	--	na	5.9E+01	--	--	--	--	--	--	--	na	--	--	na	5.9E+01
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	2.3E+03	--	--	--	--	--	--	--	na	--	--	na	2.3E+03
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	2.9E+06	--	--	--	--	--	--	--	na	--	--	na	2.9E+06
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	na	--	--	na	1.2E+04
2,4-Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	na	--	--	na	1.4E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	7.7E+02	--	--	--	--	--	--	--	na	--	--	na	7.7E+02
2,4-Dinitrotoluene ^c	0	--	--	na	9.1E+01	--	--	na	9.1E+01	--	--	--	--	--	--	--	na	--	--	na	9.1E+01
Dioxin (2,3,7,8- tetrachlorodibenzo-p- dioxin) (ppt)	0	--	--	na	1.2E-06	--	--	na	na	--	--	--	--	--	--	--	na	--	--	na	na
1,2-Diphenylhydrazine ^c	0	--	--	na	5.4E+00	--	--	na	5.4E+00	--	--	--	--	--	--	--	na	--	--	na	5.4E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	2.2E-01	5.6E-02	--	na	--	--	na	2.4E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	2.2E-01	5.6E-02	--	na	--	--	na	2.4E+02
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	2.4E+02	--	--	--	--	--	--	--	na	--	--	na	2.4E+02
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	8.6E-02	3.6E-02	na	8.1E-01	--	--	--	--	8.6E-02	3.6E-02	--	na	--	--	na	8.1E-01
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	8.1E-01	--	--	--	--	--	--	--	na	--	--	na	8.1E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wastewater Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)
Ethylbenzene	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	na
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	na
Fluorene	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	na
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	1.0E-02	--	na
Heptachlor ^c	0	5.2E-01	3.8E-03	na	2.1E-03	5.2E-01	3.8E-03	na	2.1E-03	--	--	--	--	5.2E-01	3.8E-03	na
Heptachlor Epoxide ^c	0	5.2E-01	3.8E-03	na	1.1E-03	5.2E-01	3.8E-03	na	1.1E-03	--	--	--	--	5.2E-01	3.8E-03	na
Hexachlorobenzene ^c	0	--	--	na	7.7E-03	--	--	na	7.7E-03	--	--	--	--	--	--	na
Hexachlorobutadiene ^c	0	--	--	na	5.0E+02	--	--	na	5.0E+02	--	--	--	--	--	--	na
Hexachlorocyclohexane	0	--	--	na	1.3E-01	--	--	na	1.3E-01	--	--	--	--	--	--	na
Alpha-BHC ^c	0	--	--	na	4.6E-01	--	--	na	4.6E-01	--	--	--	--	--	--	na
Beta-BHC ^c	0	--	--	na	6.3E-01	9.5E-01	--	na	6.3E-01	--	--	--	--	9.5E-01	--	na
Hexachlorocyclohexane Gamma-BHC ^c (Lindane)	0	9.5E-01	na	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	na
Hexachlorocyclopentadiene	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	na
Hexachloroethane ^c	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	2.0E+00	na
Hydrogen Sulfide	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	na
Indeno (1,2,3-cd) pyrene ^c	0	--	--	na	2.6E+04	--	--	na	2.6E+04	--	--	--	--	--	--	na
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Isophorone ^c	0	--	--	na	0.0E+00	--	--	na	0.0E+00	--	--	--	--	--	--	na
Kepone	0	1.3E+02	1.5E+01	na	--	1.3E+02	1.5E+01	na	--	--	--	--	--	1.3E+02	1.5E+01	na
Lead	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	1.0E-01	na
Malathion	0	--	--	na	5.1E-02	1.4E+00	7.7E-01	na	5.1E-02	--	--	--	--	1.4E+00	7.7E-01	na
Manganese	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	na
Mercury	0	1.4E+00	7.7E-01	na	--	--	--	na	--	--	--	--	--	--	--	na
Methyl Bromide	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	3.0E-02	na
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	0.0E+00	na
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	na
Nickel	0	1.9E+02	2.1E+01	na	4.6E+03	1.9E+02	2.1E+01	na	4.6E+03	--	--	--	--	1.9E+02	2.1E+01	na
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	na
N-Nitrosodimethylaniline ^c	0	--	--	na	8.1E+01	--	--	na	8.1E+01	--	--	--	--	--	--	na
N-Nitrosodiphenylamine ^c	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	na
N-Nitrosodi-n-propylamine ^c	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	na
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	6.5E-02	1.3E-02	na
PCB-1016	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	1.4E-02	na
PCB-1221	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	1.4E-02	na
PCB-1232	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	1.4E-02	na
PCB-1242	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	1.4E-02	na
PCB-1248	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	1.4E-02	na
PCB-1254	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	1.4E-02	na
PCB-1260	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	1.4E-02	na
PCB Total ^f	0	--	--	na	1.7E-03	--	--	na	1.7E-03	--	--	--	--	--	--	na

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)
Pentachlorophenol ^c	0	5.3E+00	4.0E+00	na	8.2E+01	5.3E+00	4.0E+00	na	8.2E+01	5.3E+00	4.0E+00	na	8.2E+01	5.3E+00	4.0E+00	na
Phenol	0	—	—	na	4.6E+06	—	—	na	4.6E+06	—	—	na	4.6E+06	—	—	na
Pyrene	0	—	—	na	1.1E+04	—	—	na	1.1E+04	—	—	na	1.1E+04	—	—	na
Radionuclides (pCi/l except Beta/Photon)	0	—	—	na	—	—	—	na	—	—	—	na	—	—	—	na
Gross Alpha Activity	0	—	—	na	1.5E+01	—	—	na	1.5E+01	—	—	na	1.5E+01	—	—	na
Beta and Photon Activity (mrem/yr)	0	—	—	na	4.0E+00	—	—	na	4.0E+00	—	—	na	4.0E+00	—	—	na
Strontium-90	0	—	—	na	8.0E+00	—	—	na	8.0E+00	—	—	na	8.0E+00	—	—	na
Tritium	0	—	—	na	2.0E+04	—	—	na	2.0E+04	—	—	na	2.0E+04	—	—	na
Selenium	0	2.0E+01	5.0E+00	na	1.1E+04	2.0E+01	5.0E+00	na	1.1E+04	2.0E+01	5.0E+00	na	1.1E+04	2.0E+01	5.0E+00	na
Silver	0	3.8E+00	—	na	—	3.8E+00	—	na	—	3.8E+00	—	na	—	3.8E+00	—	na
Sulfate	0	—	—	na	—	—	—	na	—	—	—	na	—	—	—	na
1,1,2,2-Tetrachloroethane ^c	0	—	—	na	1.1E+02	—	—	na	1.1E+02	—	—	na	1.1E+02	—	—	na
Tetrachloroethylene ^c	0	—	—	na	8.9E+01	—	—	na	8.9E+01	—	—	na	8.9E+01	—	—	na
Thallium	0	—	—	na	6.3E+00	—	—	na	6.3E+00	—	—	na	6.3E+00	—	—	na
Toluene	0	—	—	na	2.0E+05	—	—	na	2.0E+05	—	—	na	2.0E+05	—	—	na
Total dissolved solids	0	—	—	na	—	—	—	na	—	—	—	na	—	—	—	na
Toxaphene ^c	0	7.3E-01	2.0E-04	na	7.5E-03	7.3E-01	2.0E-04	na	7.5E-03	7.3E-01	2.0E-04	na	7.5E-03	7.3E-01	2.0E-04	na
Tributyltin	0	4.6E-01	6.3E-02	na	—	4.6E-01	6.3E-02	na	—	4.6E-01	6.3E-02	na	—	4.6E-01	6.3E-02	na
1,2,4-Trichlorobenzene	0	—	—	na	9.4E+02	—	—	na	9.4E+02	—	—	na	9.4E+02	—	—	na
1,1,2-Trichloroethane ^c	0	—	—	na	4.2E+02	—	—	na	4.2E+02	—	—	na	4.2E+02	—	—	na
Trichloroethylene ^c	0	—	—	na	8.1E+02	—	—	na	8.1E+02	—	—	na	8.1E+02	—	—	na
2,4,6-Trichlorophenol ^c	0	—	—	na	6.5E+01	—	—	na	6.5E+01	—	—	na	6.5E+01	—	—	na
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	—	—	na	—	—	—	na	—	—	—	na	—	—	—	na
Vinyl Chloride ^c	0	—	—	na	6.1E+01	—	—	na	6.1E+01	—	—	na	6.1E+01	—	—	na
Zinc	0	1.2E+02	1.2E+02	na	6.9E+04	1.2E+02	1.2E+02	na	6.9E+04	1.2E+02	1.2E+02	na	6.9E+04	1.2E+02	1.2E+02	na

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for industries and design flow for Municipalities
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
= (0.1(WQC - background conc.) + background conc.) for acute and chronic
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	4.3E+03
Arsenic	9.0E+01
Barium	na
Cadmium	7.1E-01
Chromium III	4.7E-01
Chromium VI	6.4E+00
Copper	5.6E+00
Iron	na
Lead	8.7E+00
Manganese	na
Mercury	5.1E-02
Nickel	1.3E+01
Selenium	3.0E+00
Silver	1.5E+00
Zinc	4.9E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

0.120 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MG/L)				0.120	
Stream Flows				Total Mix Flows	
Allocated to Mix (MGD)				Stream + Discharge (MGD)	
Dry Season	Wet Season	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	0.000	0.000	0.120	0.120	0.120
7Q10	0.000	N/A	0.120	N/A	N/A
30Q10	0.000	0.000	0.120	0.120	0.120
30Q5	0.000	N/A	0.120	N/A	N/A
Harm. Mean	0.000	N/A	0.120	N/A	N/A
Annual Avg.	0.000	N/A	0.120	N/A	N/A
Stream/Discharge Mix Values					
Dry Season		Wet Season		Wet Season	
1Q10 90th% Temp. Mix (deg C)	26.000	0.000	0.000	0.000	0.000
30Q10 90th% Temp. Mix (deg C)	26.000	0.000	0.000	0.000	0.000
1Q10 90th% pH Mix (SU)	7.200	7.200	7.200	7.200	7.200
30Q10 90th% pH Mix (SU)	7.200	7.200	7.200	7.200	7.200
1Q10 10th% pH Mix (SU)	6.500	6.500	N/A	N/A	N/A
7Q10 10th% pH Mix (SU)	6.500	6.500	N/A	N/A	N/A
Calculated				Formula Inputs	
1Q10 Hardness (mg/L as CaCO3)	106.0	106.0	106.0	106.0	106.0
7Q10 Hardness (mg/L as CaCO3)	106.0	106.0	106.0	106.0	106.0

Ammonia - Dry Season - Acute		Ammonia - Dry Season - Chronic	
90th Percentile pH (SU)	7.200	90th Percentile Temp. (deg C)	26.000
(7.204 - pH)	0.004	90th Percentile pH (SU)	7.200
(pH - 7.204)	-0.004	MIN	1.359
		MAX	26.000
Trout Present Criterion (mg N/L)	19.727	(7.688 - pH)	0.488
Trout Absent Criterion (mg N/L)	29.539	(pH - 7.688)	-0.488
Trout Present?	n		
Effective Criterion (mg N/L)	29.539	Early LS Present Criterion (mg N)	2.571
		Early LS Absent Criterion (mg N)	2.571
		Early Life Stages Present?	y
		Effective Criterion (mg N/L)	2.571

Ammonia - Wet Season - Acute		Ammonia - Wet Season - Chronic	
90th Percentile pH (SU)	7.200	90th Percentile Temp. (deg C)	0.000
(7.204 - pH)	0.004	90th Percentile pH (SU)	7.200
(pH - 7.204)	-0.004	MIN	2.850
		MAX	7.000
Trout Present Criterion (mg N/L)	19.727	(7.688 - pH)	0.488
Trout Absent Criterion (mg N/L)	29.539	(pH - 7.688)	-0.488
Trout Present?	n		
Effective Criterion (mg N/L)	29.539	Early LS Present Criterion (mg N)	5.389
		Early LS Absent Criterion (mg N)	8.751
		Early Life Stages Present?	y
		Effective Criterion (mg N/L)	5.389

0.120 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MG/L)				0.120	
100% Stream Flows				Total Mix Flows	
Allocated to Mix (MGD)				Stream + Discharge (MGD)	
Dry Season	Wet Season	Dry Season	Wet Season		
1Q10	0.000	0.000	0.120	90th Percentile pH (SU)	
7Q10	0.000	N/A	0.120	(7.204 - pH)	
30Q10	0.000	0.000	0.120	(pH - 7.204)	
30Q5	0.000	N/A	N/A	Trout Present Criterion (mg N/L)	
Harm. Mean	0.000	N/A	N/A	Trout Absent Criterion (mg N/L)	
Annual Avg.	0.000	N/A	N/A	Trout Present?	
Stream/Discharge Mix Values				Effective Criterion (mg N/L)	
Dry Season				Wet Season	
1Q10 90th% Temp. Mix (deg C)	26.000			7.200	
30Q10 90th% Temp. Mix (deg C)	26.000			0.004	
1Q10 90th% pH Mix (SU)	7.200			-0.004	
30Q10 90th% pH Mix (SU)	7.200				
1Q10 10th% pH Mix (SU)	6.500			Trout Present Criterion (mg N/L)	
7Q10 10th% pH Mix (SU)	6.500			Trout Absent Criterion (mg N/L)	
Calculated				Trout Present?	
1Q10 Hardness (mg/L as CaCO3) =	106.000			29.539	
7Q10 Hardness (mg/L as CaCO3) =	106.000			Effective Criterion (mg N/L)	
Formula Inputs					
				n	

Ammonia - Dry Season - Acute		Ammonia - Dry Season - Chronic	
90th Percentile pH (SU)	7.200	90th Percentile Temp. (deg C)	26.000
(7.204 - pH)	0.004	90th Percentile pH (SU)	7.200
(pH - 7.204)	-0.004	MIN	1.359
		MAX	26.000
Trout Present Criterion (mg N/L)	19.727	(7.688 - pH)	0.488
Trout Absent Criterion (mg N/L)	29.539	(pH - 7.688)	-0.488
Trout Present?	n	Early LS Present Criterion (mg N)	2.571
Effective Criterion (mg N/L)	29.539	Early LS Absent Criterion (mg N)	2.571
		Early Life Stages Present?	y
		Effective Criterion (mg N/L)	2.571

Ammonia - Wet Season - Acute		Ammonia - Wet Season - Chronic	
90th Percentile pH (SU)	7.200	90th Percentile Temp. (deg C)	0.000
(7.204 - pH)	0.004	90th Percentile pH (SU)	7.200
(pH - 7.204)	-0.004	MIN	2.850
		MAX	7.000
Trout Present Criterion (mg N/L)	19.727	(7.688 - pH)	0.488
Trout Absent Criterion (mg N/L)	29.539	(pH - 7.688)	-0.488
Trout Present?	n	Early LS Present Criterion (mg N)	5.389
Effective Criterion (mg N/L)	29.539	Early LS Absent Criterion (mg N)	8.751
		Early Life Stages Present?	y
		Effective Criterion (mg N/L)	5.389

Purkin Corners WWTP Effluent pH and Temperature Data January 2010 - August 2011

	Date	pH	Temperature		Date	pH	Temperature		Date	pH	Temperature
Jan-10	1	6.8	9.2	Feb-10	24	7.6	8.0	Apr-10	19	7.1	15.2
	2	6.7	9.0		25	7.7	8.0		20	7.1	15.1
	3	6.8	9.0		26	7.3	8.3		21	7.1	15.7
	4	6.8	9.0		27				22	7.2	15.8
	5	7.0	7.3		28	7.6	8.4		23	7.2	16.0
	6	7.1	8.1		1	7.2	8.3		24	7.2	16.5
	0	7.1	8.9		2	7.4	9.2		25	7.5	16.8
	8	7.2	8.5		3	7.1	9.0		26	6.5	17.1
	9	7.2	8.5		4	7.4	9.0		27	7.1	17.0
	10	7.1	8.0		5	7.1	9.0		28	7.1	16.2
	11	7.0	8.0		6	7.0	9.2		29	7.3	15.3
	12	7.0	7.4		7	7.2	9.3		30	7.1	15.7
	13	7.5	7.5		8	7.2	9.0	May-10	1	6.7	16.9
	14	7.1	7.0		9	7.3	9.7		2	6.7	18.0
	15	7.1	7.8		10	7.4	10.4		3	6.6	19.7
	16	7.1	7.9		11	7.0	11.2		4	6.8	20.3
	17	7.2	8.1		12	7.5	12.5		5	6.7	19.8
	18	7.1	9.0		13	7.2	12.7		6	6.7	19.9
	19	7.6	9.8		14	7.4	13.0		7	6.5	19.8
	20	7.4	9.9		15	6.9	12.5		8	6.4	19.9
	21	7.1	9.9		16	6.8	12.2		9	6.8	18.1
	22	7.0	10.1		17	7.3	12.0		10	6.0	17.9
	23	7.1	9.7		18	7.2	12.2		11	6.7	17.7
	24	6.9	9.9		19	7.1	12.2		12	6.9	17.9
	25	6.6	11.0		20	7.3	12.2		13	6.9	18.6
	26	6.8	11.2		21	7.5	12.7		14	6.9	18.7
	27	6.9	9.9		22	7.4	13.7		15	6.6	19.8
	28	6.8	9.7		23	7.4	13.4		16	7.0	19.9
	29	6.5	9.0		24	7.3	13.0		17	6.7	19.8
	30	6.9	8.8		25	7.3	13.0		18	6.5	18.9
	31	6.6	6.2		26	7.3	13.7		19	6.8	18.5
Feb-10	1	6.8	6.5	Mar-10	27	7.3	12.6		20	6.8	18.7
	2	6.7	10.8		28	7.2	12.1		21	6.7	19.1
	3	6.8	9.9		29	7.1	12.7		22	6.7	19.9
	4	7.1	9.4		30	7.1	12.8		23	6.0	20.6
	5	7.3	9.6		31	7.1	12.6		24	7.0	20.9
	6			Apr-10	1	7.5	13.0		25	6.7	20.6
	7				2	7.3	13.6		26	6.6	21.1
	8	7.4	6.5		3	7.5	14.0		27	6.7	21.9
	9	7.3	6.6		4	7.5	14.7		28	6.6	21.6
	10	6.7	6.1		5	7.3	15.0		29	6.7	21.4
	11	7.1	6.0		6	7.2	15.8		30	6.7	22.4
	12	7.1	6.2		7	7.5	16.5		31	6.2	0.0
	13	7.2	6.4		8	7.3	17.0	Jun-10	1	6.5	22.8
	14	7.3	6.4		9	7.3	16.6		2	6.7	22.8
	15	7.2	6.4		10	7.3	14.9		3	6.8	23.2
	16	7.4	6.3		11	7.2	14.9		4	6.8	23.0
	17	7.4	6.2		12	7.2	15.4		5	7.0	23.2
	18	7.5	6.5		13	7.1	15.5		6	6.8	23.9
	19	7.4	6.9		14	6.9	15.4		7	6.8	23.2
	20	7.2	7.5		15	7.3	14.9		8	6.8	22.3
	21	7.3	7.3		16	7.0	15.0		9	6.7	22.0
	22	7.3	7.2		17	7.0	15.0		10	6.2	22.3
	23	7.2	8.4		18	7.2	15.9		11	6.3	22.4

Purkin Corners WWTP Effluent pH and Temperature Data January 2010 - August 2011

	Date	pH	Temperature		Date	pH	Temperature		Date	pH	Temperature
Jun-10	12	6.6	22.9	Aug-10	5	6.3	25.9	Sep-10	28	7.2	23.9
	13	6.5	23.5		6	6.4	26.3		29	6.9	23.9
	14	6.3	24.0		7	6.6	26.0		30	6.5	23.5
	15	6.6	24.4		8	6.8	25.7	Oct-10	1	6.9	23.7
	16	6.8	24.4		9	6.4	25.8		2	6.8	22.4
	17	6.7	24.4		10	6.5	25.8		3	6.8	21.0
	18	6.6	24.4		11	6.4	26.3		4	6.5	20.7
	19	6.5	24.4		12	6.4	26.9		5	6.8	20.2
	20	6.9	24.5		13	6.4	26.7		6	6.5	20.0
	21	6.8	24.6		14	6.4	27.0		7	6.6	20.0
	22	6.8	24.6		15	4.7	25.9		8	6.7	19.7
	23	6.6	24.9		16	5.2	25.8		9	6.9	20.2
	24	6.6	25.4		17	5.6	26.3		10	6.8	20.4
	25	6.8	25.4		18	6.8	26.6		11	6.7	21.0
	26	6.7	25.3		19	6.8	26.6		12	6.9	20.9
	27	6.3	25.3		20	6.8	26.0		13	6.9	21.3
	28	6.4	25.8		21	6.6	26.1		14	7.0	20.9
	29	6.6	26.3		22	6.8	26.1		15	6.5	20.3
	30	7.1	25.4		23	6.7	26.1		16	6.6	19.3
Jul-10	1	7.1	24.3	Sep-10	24	6.6	25.8		17	6.5	18.8
	2	7.2	23.2		25	6.3	25.0	Nov-10	18	6.9	18.6
	3	6.9	22.9		26	6.9	25.0		19	6.4	18.9
	4	6.8	23.1		27	6.8	25.0		20	7.0	19.1
	5	6.8	23.7		28	6.9	25.0		21	6.5	19.5
	6	6.7	24.5		29	6.7	24.8		22	6.5	18.4
	7	6.8	25.2		30	6.5	25.1		23	6.5	18/1
	8	6.8	25.9		31	6.4	25.3		24	6.4	18.8
	9	6.5	26.1		1	6.1	25.6		25	6.9	19.3
	10	6.4	26.3		2	6.8	25.5		26	7.0	20.2
	11	6.6	25.5		3	6.6	25.8		27	6.5	21.4
	12	6.6	25.5		4	7.0	25.8		28	6.8	21.0
	13	6.9	25.7		5	6.8	24.1		29	6.9	20.0
	14	6.6	25.8		6	6.5	23.3		30	6.4	18.0
	15	6.2	25.7		7	6.7	24.0		31	6.3	18.1
	16	7.0	26.1		8	6.8	24.4		1	6.3	17.0
	17	7.2	26.0		9	6.8	23.0		2	6.7	17.0
	18	6.9	28.3		10	6.4	23.0		3	6.7	16.2
	19	6.8	27.0		11	6.5	24.0		4	6.5	17.1
	20	6.5	26.5		12	6.1	22.9		5	6.6	16.4
Aug-10	21	6.3	26.5		13	6.5	23.6		6	6.7	16.5
	22	6.52	26.5		14	6.6	23.0		7	6.7	15.7
	23	6.2	26.6		15	6.6	23.0		8	6.8	15.1
	24	6.6	26.9		16	6.8	23.4		9	6.8	15.2
	25	6.8	27.0		17	6.6	23.8		10	6.6	16.4
	26	6.9	27.0		18	6.4	23.3		11	7.0	15.6
	27	6.8	26.0		19	6.4	23.1		12	6.8	15.5
	28	6.8	26.0		20	7.8	23.0		13	6.8	15.3
	29	6.9	26.0		21	7.0	22.5		14	6.4	15.2
	30	6.9	26.4		22	6.9	23.0		15	6.8	15.2
	31	6.7	25.7		23	6.5	24.0		16	6.8	16.2
	1	6.7	25.0		24	6.9	24.0		17	6.5	15.7
	2	6.2	25.0		25	7.2	25.0		18	6.5	15.7
	3	6.8	25.2		26	7.2	24.4		19	6.8	15.6
	4	6.4	25.9		27	7.6	23.6		20	6.5	15.9

Purkin Corners WWTP Effluent pH and Temperature Data January 2010 - August 2011

	Date	pH	Temperature		Date	pH	Temperature		Date	pH	Temperature
Nov-10	21	6.9	14.7	Jan-11	14	6.8	7.3	Mar-11	9	6.5	10.6
	22	6.7	15.5		15	7.6	8.0		10	6.7	11.4
	23	6.9	15.4		16	6.9	8.7		11	6.8	11.8
	24	7.1	15.8		17	6.9	8.8		12	6.7	11.8
	25	6.7	15.0		18	6.8	8.6		13	6.3	12.0
	26	6.2	15.4		19	6.8	9.4		14	6.6	11.6
	27	6.5	14.2		20	6.8	9.1		15	6.7	11.4
	28	6.5	13.4		21	6.8	9.3		16	6.5	11.9
	29	6.7	12.6		22	6.9	9.0		17	6.6	11.8
	30	7.0	14.3		23	6.8	6.9		18	6.9	12.8
Dec-10	1	7.1	15.4	Feb-11	24	6.7	6.5	Apr-11	19	6.9	13.6
	2	7.1	14.4		25	6.5	7.0		20	6.9	13.4
	3	6.9	13.6		26	6.6	7.4		21	6.7	12.3
	4	7.2	13.2		27	6.7	7.7		22	6.8	13.5
	5	6.8	12.4		28	6.4	7.9		23	6.8	13.9
	6	6.8	11.7		29	6.7	8.1		24	6.9	13.7
	7	7.0	11.8		30	6.7	7.8		25	6.8	12.5
	8	7.0	11.1		31	6.7	7.8		26	6.5	12.6
	9	6.9	10.2		1	6.7	7.9		27	7.0	12.0
	10	7.0	10.7		2	6.7	8.5		28	6.9	11.2
	11	7.0	10.4		3	6.6	8.5	May-11	29	6.6	10.8
	12	6.9	11.1		4	6.6	8.5		30	6.9	11.6
	13	6.8	11.1		5	6.4	8.9		31	7.1	11.6
	14	7.1	10.1		6	6.4	9.0		1	7.1	11.9
	15	6.9	9.6		7	6.8	8.6		2	7.2	11.8
	16	6.8	9.6		8	6.6	9.4		3	7.2	11.2.6
	17	6.7	8.0		9	6.7	9.2		4	7.3	11.9
	18	6.7	8.7		10	6.6	7.9		5	7.2	13.7
	19	6.8	8.7		11	6.7	7.5		6	6.8	12.9
	20	7.0	9.9		12	6.8	7.7		7	6.7	12.0
	21	6.7	8.4		13	6.8	8.5		8	6.6	13.9
	22	7.0	9.5		14	6.8	8.9		9	6.8	13.6
	23	7.0	9.0		15	6.8	9.0		10	6.8	13.0
	24	6.9	9.2		16	6.7	8.6		11	6.6	13.0
	25	7.0	9.1		17	6.8	9.2		12	6.2	16.2
	26	7.2	7.0		18	6.9	10.1		13	6.9	15.6
	27	7.0	7.7		19	7.0	10.6		14	7.1	15.2
	28	6.8	7.8		20	7.0	10.3		15	7.2	15.1
	29	6.9	7.9		21	7.0	10.4		16	7.1	15.3
	30	6.8	9.2		22	6.7	10.4		17	7.0	15.4
	31	7.1	9.7	Mar-11	23	6.7	9.3		18	7.1	15.4
	1	6.9	10.2		24	6.7	9.3		19	6.7	15.6
	2	6.9	11.7		25	6.7	10.3		20	7.0	16.1
	3	7.0	10.6		26	6.8	10.4		21	7.0	16.4
	4	6.9	10.0		27	7.0	10.0		22	6.8	15.7
	5	6.9	9.6		28	7.1	11.3		23	6.8	15.2
	6	6.8	9.4		1	7.2	11.1		24	6.8	16.2
	7	6.8	9.1		2	7.0	11.0		25	6.8	17.3
	8	6.9	9.0		3	6.8	10.4		26	7.0	18.2
	9	6.7	8.1		4	6.9	9.7		27	7.1	18.9
Jan-11	10	6.7	7.2		5	6.9	10.6		28	7.3	19.9
	11	6.8	7.6		6	6.7	11.3		29	7.2	19.0
	12	6.8	7.9		7	6.6	11.5		30	7.1	17.0
	13	6.8	7.5		8	6.6	11.0		1	6.9	17.8

Purkin Corners WWTP Effluent pH and Temperature Data January 2010 - August 2011

	Date	pH	Temperature
May-11	2	6.9	17.6
	3	6.8	18.3
	4	7.2	18.5
	5	6.8	17.6
	6	6.5	17.0
	7	6.7	17.2
	8	6.2	17.8
	9	6.5	17.9
	10	6.5	17.9
	11	6.3	18.1
	12	6.9	18.6
	13	6.8	19.3
	14	6.6	19.8
	15	6.4	19.6
	16	6.6	19.9
	17	6.8	20.2
	18	6.8	20.0
	19	6.5	20.0
	20	6.8	20.0
	21	7.0	20.0
	22	6.8	20.2
	23	6.5	20.7
	24	7.1	21.3
	25	7.0	21.7
	26	6.8	22.1
	27	7.1	22.0
	28	6.7	22.1
	29	6.9	22.5
	30	6.7	22.8
	31	7.0	23.2
Jun-11	1	7.0	23.7
	2	6.9	23.9
	3	6.7	23.6
	4	6.7	21.7
	5	6.9	22.2
	6	6.7	22.3
	7	7.0	22.3
	8	7.0	23.0
	9	7.0	24.0
	10	7.0	24.3
	11	7.1	24.7
	12	7.1	24.5
	13	7.1	24.0
	14	7.1	23.5
	15	7.2	22.8
	16	7.2	22.7
	17	7.0	23.0
	18	7.2	23.4
	19	7.1	24.1
	20	7.1	23.7
	21	7.0	23.6
	22	7.2	24.1
	23	7.1	24.7
	24	7.2	24.5

	Date	pH	Temperature
Jun-11	25	7.2	24.1
	26	7.1	24.1
	27	6.9	24.1
	28	7.0	24.5
	29	6.9	24.9
	30	6.9	24.4
Jul-11	1	6.9	24.0
	2	6.8	23.8
	3	6.9	24.3
	4	6.9	24.6
	5	6.7	24.8
	6	6.8	25.1
	7	6.9	24.9
	8	7.0	25.6
	9	7.0	25.4
	10	6.9	25.7
	11	7.0	25.4
Aug-11	12	7.0	26.0
	13	7.2	26.2
	14	7.3	25.6
	15	7.2	25.6
	16	7.5	25.6
	17	7.6	24.5
	18	7.4	25.1
	19	7.2	25.8
	20	7.3	26.0
	21	7.1	26.1
	22	7.2	26.7
	23	7.2	26.9
	24	7.1	27.1
	25	7.2	27.0
	26	7.3	26.6
	27	6.6	27.1
	28	7.0	26.7
	29	7.1	27.0
	30	6.7	27.3
	31	7.1	27.2
	1	7.0	27.0
	2	7.0	26.4
	3	7.0	26.7
	4	7.2	26.4
	5	7.2	26.8
	6	7.4	26.2
	7	7.5	26.7
	8	7.3	26.5
	9	7.0	26.5
	10	7.2	26.6
	11	7.1	26.3
	12	7.2	26.4
	13	7.1	26.0
	14	7.3	26.1
	15	6.8	26.0
	16	6.8	25.1
	17	6.9	25.3

	Date	pH	Temperature
Aug-11	18	7.1	25.5
	19	7.4	25.6
	20	7.3	25.5
	21	7.2	25.9
	22	6.9	25.7
	23	7.0	25.0
	24	7.2	24.7
	25	7.2	25.1
	26	7.2	25.4
	27	6.9	26.0
	28	6.8	25.6
	29	6.8	24.8
	30	6.7	24.4
	31	6.9	24.3

pH 90th percentile = 7.2 SU

pH 10th percentile = 6.5 SU

Temperature 90th percentile = 26°C

Purkins Corner WWTP Total Hardness Data (July 2008 - August 2011)

Date	Hardness
7/2/2008	21.2
8/6/2008	36
9/7/2008	37
9/12/2008	55
9/14/2008	32
9/19/2008	63
9/18/2008	56
9/21/2008	67
9/25/2008	60
9/28/2008	65
11/2/2008	146
11/6/2008	209
11/10/2008	180.2
11/13/2008	123
11/17/2008	137
11/23/2008	158
11/26/2008	55.8
11/27/2008	120
11/30/2008	125
12/5/2008	114
12/8/2008	124.0
12/11/2008	68.0
12/14/2008	136.0
12/18/2008	153.0
12/21/2008	148.0
12/28/2008	93.0
1/4/2009	165
1/8/2009	90.0
1/12/2009	92
1/12/2009	194
1/23/2009	68.0
1/25/2009	64
1/25/2009	64.0
1/29/2009	55.0
2/1/2009	61
2/1/2009	61.0
2/7/2009	53
2/7/2009	53.0
2/8/2009	49
2/9/2009	49.0
2/12/2009	106.0
2/12/2009	45.0
2/13/2009	45
2/15/2009	72.0
2/19/2009	65.0
2/21/2009	106.0
2/24/2009	69.0
2/26/2009	39.0
3/3/2009	76.0
3/5/2009	78.0
3/9/2009	54.0
3/10/2009	111.0
3/12/2009	72.0
3/17/2009	42.0
3/20/2009	81.0
3/23/2009	61.0
3/26/2009	51.0

Date	Hardness
3/29/2009	67.0
4/1/2009	116.0
4/3/2009	84.0
4/5/2009	91.0
4/9/2009	82.0
4/12/2009	118.0
4/16/2009	68.0
4/19/2009	96.0
4/23/2009	66.0
4/26/2009	95.0
4/30/2009	99.0
5/3/2009	95.0
5/7/2009	62.0
5/8/2009	87.0
5/11/2009	78.0
5/14/2009	66.0
5/17/2009	142.0
5/21/2009	122.0
5/25/2009	22.0
5/28/2009	188.0
5/31/2009	208.0
6/2/2009	206.0
6/4/2009	70.0
6/7/2009	82.0
6/8/2009	87.0
6/10/2009	78.0
6/11/2009	84.0
6/14/2009	69.0
6/17/2009	142.0
6/18/2009	89.0
6/21/2009	78.0
6/26/2009	44.0
6/28/2009	104.0
7/2/2009	104.0
7/5/2009	87.0
7/10/2009	58.0
7/12/2009	62.0
7/16/2009	78.0
7/19/2009	80.0
7/24/2009	155.0
7/27/2009	99.0
7/31/2009	115.0
8/3/2009	258.0
8/6/2009	64.0
8/7/2009	130.0
8/9/2009	177.0
8/13/2009	229.0
8/16/2009	208.0
8/20/2009	232.0
8/23/2009	180.0
8/27/2009	150.0
8/30/2009	178.0
9/1/2009	169.0
9/3/2009	126.0
9/6/2009	149.0
9/10/2009	136.0
9/13/2009	148.0

Date	Hardness
9/17/2009	128.0
9/21/2009	122.0
10/1/2009	136.0
10/7/2009	138.0
10/9/2009	166.0
10/12/2009	157.0
10/20/2009	146.0
10/26/2009	122.0
11/1/2009	156.0
11/3/2009	164.0
11/9/2009	96.0
11/15/2009	59.0
11/16/2009	61.0
12/2/2009	92.9
12/13/2009	153.0
1/4/2010	57.0
1/6/2010	42.3
1/19/2010	88.0
2/4/2010	154.0
2/10/2010	81.0
2/19/2010	51.0
2/25/2010	115.0
3/12/2010	93.0
3/16/2010	137.0
3/19/2010	109.0
3/23/2010	101.0
4/1/2010	94.7
4/8/2010	106.0
4/22/2010	70.0
5/5/2010	120.0
5/6/2010	110.0
5/12/2010	99.0
6/6/2010	67.0
6/9/2010	59.8
6/15/2010	83.0
7/5/2010	97.0
7/7/2010	95.2
7/11/2010	88.0
8/2/2010	131.0
8/6/2010	212.0
8/11/2010	119.0
8/24/2010	206.0
9/8/2010	100.0
9/9/2010	87.0
9/20/2010	96.0
10/4/2010	108.0
10/7/2010	148.0
10/11/2010	196.0
10/18/2010	152.0
11/4/2010	153.0
11/8/2010	208.0
12/5/2010	180.0
12/7/2010	168.0
12/13/2010	139.0
1/3/2011	119.0
1/7/2011	79.3
1/9/2011	119.0

Date	Hardness
2/6/2011	102.0
2/9/2011	78.4
2/14/2011	112.0
3/9/2011	160.0
3/14/2011	60.0
3/22/2011	77.0
4/12/2011	91.8
4/20/2011	133.0
5/4/2011	138.0
5/8/2011	144.0
5/16/2011	120.0
6/3/2011	96.0
6/6/2011	106.0
6/13/2011	131.0
7/6/2011	107.0
7/11/2011	92.0
7/18/2011	90.0
8/2/2011	106.0
8/8/2011	113.0
8/15/2011	113.0

Total Hardness Average = 106 mg/L

VaFWIS - Department of Game and Inland Fisheries

38,15,13.9 -77,09,22.9

is the Search Point

Submit

Cancel

Search Point

- ☒ Change to "clicked" map point
- ☐ Fixed at 38,15,13.9 - 77,09,22.9

Show Position Rings

- ☒ Yes ☐ No

1 mile and 1/4 mile at the Search Point

Show Search Area

- ☒ Yes ☐ No

2 Search distance miles radius

Search Point is at map center



Base Map Choices

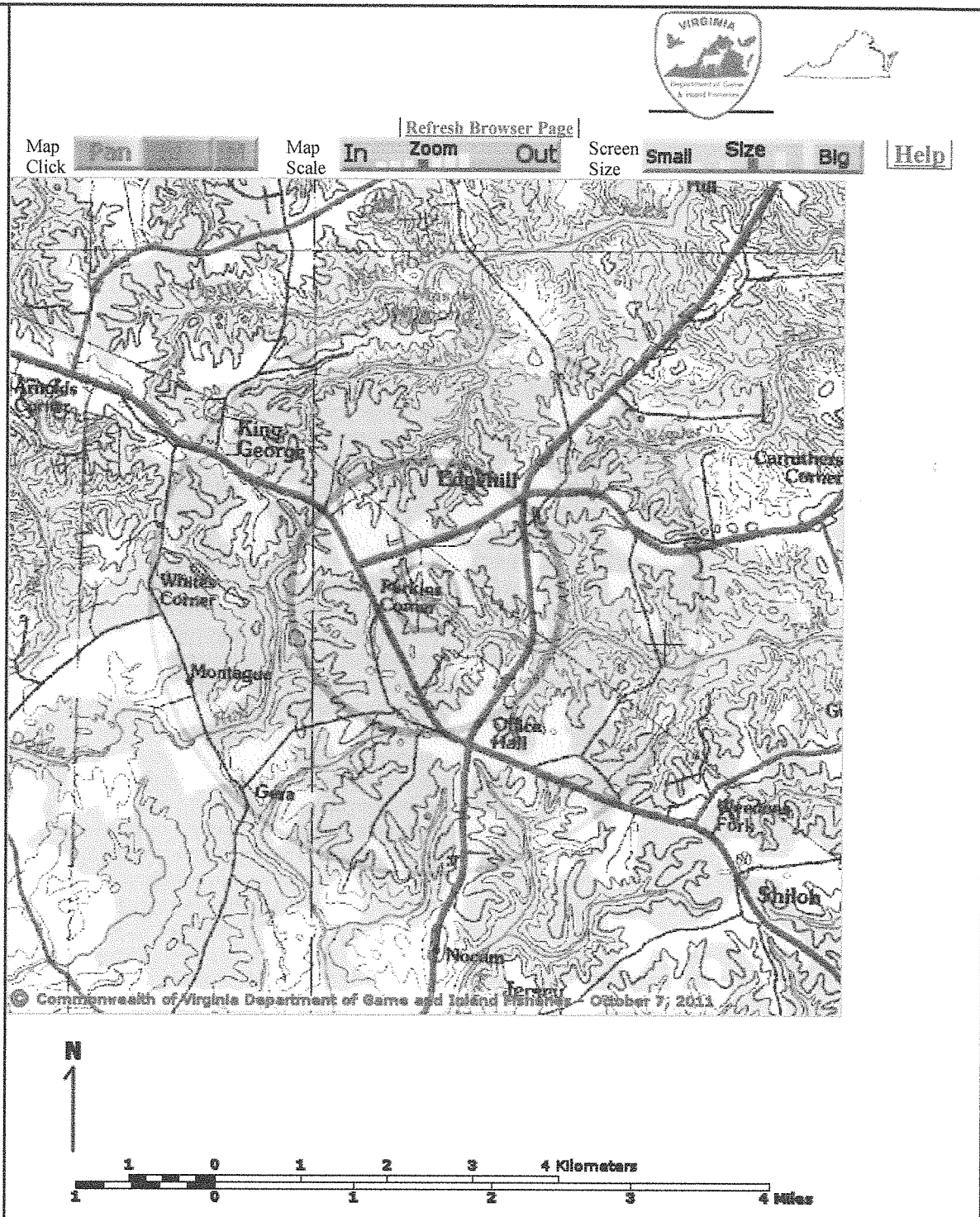
Topography

Map Overlay Choices

Current List: Position, Search

Map Overlay Legend

-  Position Rings
1 mile and 1/4 mile at the Search Point
-  2 mile radius Search Area



Point of Search 38,15,13.9 -77,09,22.9

Map Location 38,15,13.9 -77,09,22.9

- Select Coordinate System: ☒ Degrees, Minutes, Seconds Latitude - Longitude
- ☐ Decimal Degrees Latitude - Longitude
 - ☐ Meters UTM NAD83 East North Zone
 - ☐ Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 18 NAD 1983 with left 306534 and top 4240994. Pixel size is 16 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet east to west by 31501 feet north to south for a total of 35.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+-
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic
Information Network.
Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>
All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2011-10-07 14:21:05 (qa/qc August 3, 2011 12:40 - tn=359553 dist=32181)

| [DGIF](#) | [Credits](#) | [Disclaimer](#) | Contact shirl.dressler@dgif.virginia.gov | Please view our [privacy policy](#) |
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VaFWIS Initial Project Assessment Report

Compiled on 10/7/2011, 2:23:35 PM

[Help](#)

Known or likely to occur within a **2 mile radius around point 38,15,13.9 -77,09,22.9**
in **099 King George County, VA**

[View Map of Site Location](#)

399 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 20) (16 species with Status* or Tier I** or Tier II**)

<u>BOVA Code</u>	<u>Status*</u>	<u>Tier**</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Confirmed</u>	<u>Database(s)</u>
040129	ST	I	<u>Sandpiper, upland</u>	Bartramia longicauda		BOVA
040293	ST	I	<u>Shrike, loggerhead</u>	Lanius ludovicianus		BOVA
040385	ST	I	<u>Sparrow, Bachman's</u>	Aimophila aestivalis		HU6
040093	FSST	II	<u>Eagle, bald</u>	Haliaeetus leucocephalus		BOVA,BBS,HU6
040292	ST		<u>Shrike, migrant loggerhead</u>	Lanius ludovicianus migrans		BOVA
030067	CC	II	<u>Terrapin, northern diamond-backed</u>	Malaclemys terrapin terrapin		HU6
030063	CC	III	<u>Turtle, spotted</u>	Clemmys guttata		BOVA,HU6
040225		I	<u>Sapsucker, yellow-bellied</u>	Sphyrapicus varius		BOVA
040319		I	<u>Warbler, black-throated green</u>	Dendroica virens		BOVA
010032		II	<u>Sturgeon, Atlantic</u>	Acipenser oxyrinchus		BOVA
040038		II	<u>Bittern, American</u>	Botaurus lentiginosus		HU6
040052		II	<u>Duck, American black</u>	Anas rubripes		BOVA,HU6
040105		II	<u>Rail, king</u>	Rallus elegans		BOVA,HU6
040187		II	<u>Tern, royal</u>	Sterna maxima maximus		BOVA
040320		II	<u>Warbler, cerulean</u>	Dendroica cerulea		BOVA,HU6
040266		II	<u>Wren, winter</u>	Troglodytes troglodytes		BOVA
020005		III	<u>Frog, carpenter</u>	Lithobates virgatipes		HU6
020082		III	<u>Siren, eastern lesser</u>	Siren intermedia intermedia		HU6
030068		III	<u>Turtle, eastern box</u>	Terrapene carolina carolina		BOVA,HU6
040037		III	<u>Bittern, least</u>	Ixobrychus exilis exilis		BOVA,HU6

To view **All 399 species** [View 399](#)

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FC=Federal Candidate; FS=Federal Species of Concern; CC=Collection Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

N/A

Anadromous Fish Use Streams Colonial Water Bird Survey N/A

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species

N/A

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

Compiled on 10/7/2011, 2:23:35 PM I359553.0 report= IPA searchType= R dist= 3218
poi= 38,15,13.9 -77,09,22.9

11/16/2011 11:38:39 AM

Facility = Purkins Corner WWTP
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 30
WLAc = 2.6
Q.L. = .2
samples/mo. = 12
samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average = 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.24594224288241
Average Weekly limit = 3.83711140370929
Average Monthly Limit = 2.85814646754921

Unit of measurement are mg/L.

The data are:

5/18/2012 3:02:15 PM

Facility = Purkins Corner
Chemical = Total Recoverable Zinc
Chronic averaging period = 4
WLAa = 120
WLAc = 120
Q.L. = 49
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 42
Expected Value = 62.1633
Variance = 435.064
C.V. = 0.335538
97th percentile daily values = 115.280
97th percentile 4 day average = 79.9538
97th percentile 30 day average = 68.0850
< Q.L. = 22
Model used = delta lognormal

No Limit is required for this material

Units of Measurement are ug/L.
The data are:

26.2
10
28
51.3
46.3
27.3
33.6
59.6
68.1
5.4
48.9
19.8
33
31.9
86.4
107
135
13.5
60.6
91.6
27.3
41.6
52
30.8
48.8
34.7
80.5
87.6
57.4
43.3
62.6
69.1
78
56.7
26.3
78.8
61.4
18
134
56.2
46.9
48.5

12/28/2011 4:46:06 PM

Facility = Purkins Corner WWTP
Chemical = Total Recoverable Copper
Chronic averaging period = 4
WLAa = 14
WLAc = 9.4
Q.L. = 5.6
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 44
Expected Value = 3.58814
Variance = 4.63491
C.V. = 0.6
97th percentile daily values = 8.73145
97th percentile 4 day average = 5.96991
97th percentile 30 day average = 4.32749
< Q.L. = 38
Model used = BPJ Assumptions, Type 1 data

No Limit is required for this material

The data are:

1.2 Units of measurement is ug/L.
1
1.3
1
2.1
1.9
3.3
3.4
2.2
10.2
1
1
1.2
1
1
1.6
4.6
13
12.4
1
2.6
4.3
1
1
2.8
1
1
1
3
3.3
4.7
17.1
3.6
4.6
5.4
2.2
1
2.7
1.1
4.8
6.7
5
3.2
6.3

```

Facility      = Purkins Corner WWTP
Chemical      = Total Recoverable Selenium
Chronic averaging period = 4
WLAa         = 20
WLAc         = 5
Q.L.         = 3.0
# samples/mo. = 1
# samples/wk. = 1

```

```
# observations = 43
Expected Value =
Variance =
C.V. =
97th percentile daily values =
97th percentile 4 day average =
97th percentile 30 day average=
# < Q.L. = 43
Model used =
```

The data are:

Unit of measurement is ug/L

Purkins Corner Metal Data (ug/L)

Date	Zinc		Copper		Selenium	
	Dissolved	Total	Dissolved	Total	Dissolved	Total
1/1/2008		240		6		2
2/7/2008		44.6		11.9		0.3
2/21/2008		24.5		11.2		0.2
3/6/2008	26.2	33.8	1.2	6.6	0.2	0.2
3/20/2008	<10.0	26	<1.0	1	<0.1	0.2
4/10/2008	28	34.4	1.3	5.9	0.2	0.2
5/8/2008	51.3	56.4	<1.0	1.9	<0.1	0.1
6/12/2008	46.3	44.3	2.1	2.9	0.1	0.2
7/2/2008	27.3	28.5	1.9	3.1	0.3	0.2
8/17/2008	33.6	33.9	3.3	3.9	<0.1	0.1
9/17/2008	59.6	72.4	3.4	4.6	0.1	0.1
10/7/2008	68.1	72.1	2.2	3.2	0.1	0.2
11/13/2008	197	197	10.2	14.1	0.1	0.2
12/3/2008	5.4	30.6	1	15.5	0.2	0.4
1/12/2009	48.6	53.8	<1.0	3	<0.1	0.1
2/12/2009	19.8	24.2	1.2	4.8	0.1	0.1
3/10/2009	33	43.4	<1.0	5.8	0.1	0.1
4/1/2009	31.9	53.5	<1.0	7.5	0.1	0.2
5/7/2009	86.4	98.7	1.6	3.6	0.1	0.1
6/2/2009	107	134	4.6	6.5	0.1	0.1
7/9/2009	135	142	13	14.8	0.2	0.2
7/29/2009			12.4	12.7		
8/7/2009	13.5	17.7	<1.0	3.1	0.1	0.2
9/1/2009	60.6	70.9	2.6	4.5	0.1	0.1
10/7/2009	91.6	104	4.3	6.9	<0.1	0.1
11/3/2009	27.3	29	<1.0	1	0.1	0.1
12/2/2009	41.6	45.2	<1.0	1	0.1	0.2
1/6/2010	52	72.7	2.8	12.9	0.1	0.1
2/4/2010	30.8	33.9	1	1.9	0.1	0.1
3/19/2010	48.8	52.5	1	1.1	0.1	0.1
4/1/2010	34.7	38.1	1	1.7	0.1	0.1
5/6/2010	80.5	91.5	3	8	0.1	0.1
6/9/2010	87.6	101	3.3	7.2	0.1	0.1
7/7/2010	57.4	59.7	4.7	5.3	0	0.1
8/6/2010	43.3	44.9	17.1	17.1	0.2	0.1
9/9/2010	62.6	72.5	3.6	5.5	0.1	0.1
10/7/2010	69.1	71.1	4.6	5.3	0.1	0.1
11/4/2010	78	79.2	5.4	6.5	0.1	0.1
12/7/2010	56.7	63.5	2.2	4.7	0.1	0.1
1/7/2011	26.3	39	1	6.8	0.1	0.1
2/9/2011	78.8	101	2.7	15.8	0.1	0.1
3/9/2011	61.4	68	1.1	5	0.1	0.1
4/12/2011	168	191	4.8	11.4	0.1	0.1
5/4/2011	134	138	6.7	7.9	0	0
6/2/2011	56.2	65.9	5	7.4	0.1	0.1
7/6/2011	46.9	59.5	3.2	5	0.1	0.1
8/2/2011	48.5	50.6	6.3	7.2	0	0

11/13/08 Dissolved Zinc
(197 ug/L) was not used
in Statistical program.
DMR for November 2008
reported a plant upset
so it was staff's judgment
that this data point was
not representative.

JCC
5/21/12

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in King George County, Virginia.

PUBLIC COMMENT PERIOD: XXX, 2012 to 5:00 p.m. on XXX, 2012

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: King George County Service Authority, 9207 Kings Highway, King George, VA 22485, VA0070106

NAME AND ADDRESS OF FACILITY: Purkins Corner Wastewater Treatment Plant, 11224 Henry Griffin Road, King George, VA 22485

PROJECT DESCRIPTION: NAME OF APPLICANT has applied for a reissuance of a permit for the public Purkins Corner Wastewater Treatment Plant. The applicant proposes to release treated sewage wastewaters from residential/commercial/industrial areas at a rate of 0.12 million gallons per day into a water body. The sludge will be disposed by taking it to the King George County's Dahlgren Wastewater Treatment Plant (VA0026514) for further digestion and dewatering prior to disposal at the King George Landfill. The facility proposes to release treated sewage wastewaters in the Pine Hill Creek, UT in King George County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: : pH, cBOD₅, Total Suspended Solids, TKN, Total Nitrogen, Total Phosphorus, Dissolved Oxygen, and *E.coli*. The permit will also require effluent monitoring for Total Recoverable Copper and Total Hardness.

This facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Joan C. Crowther

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3925 E-mail: joan.crowther@deq.virginia.gov Fax: (703) 583-3821

**State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review**

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Purkins Corner Wastewater Treatment Plant
NPDES Permit Number:	VA0070106
Permit Writer Name:	Joan C. Crowther
Date:	December 2, 2011

Major ☐Minor ☒Industrial ☐Municipal ☒**I.A. Draft Permit Package Submittal Includes:**

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?		X	
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet or permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?	X		
5. Has there been any change in streamflow characteristics since the last permit was developed?	X		
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?			X
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?	X		
10. Does the permit authorize discharges of storm water?		X	

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs (To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration

	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements

	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (POTWs)

	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits

	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?			X
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?		X	
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			X
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?			X
2. Does the permit include appropriate storm water program requirements?			X

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the “Nine Minimum Controls”?			X
b. Does the permit require development and implementation of a “Long Term Control Plan”?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?	X		

II.G. Standard Conditions		Yes	No	N/A
1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?		X		
List of Standard Conditions – 40 CFR 122.41				
Duty to comply	Property rights	Reporting Requirements		
Duty to reapply	Duty to provide information	Planned change		
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance		
not a defense	Monitoring and records	Transfers		
Duty to mitigate	Signatory requirement	Monitoring reports		
Proper O & M	Bypass	Compliance schedules		
Permit actions	Upset	24-Hour reporting		
		Other non-compliance		
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?		X		